Early Australian Commercial Glass: Manufacturing Processes

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for
The Heritage Council of NSW

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This Report is dedicated to the late Jennifer Bennett to acknowledge her service to friends and others.

ABBREVIATIONS

s. Imperial monetary unit of shilling
d. Imperial monetary unit of pence
ABR Australian Bottle Review
H.R.A. Historical Records of Australia
MAAS Museum of Applied Arts and Sciences
S.G. Sydney Gazette
S.H. Sydney Herald

CONVERSION TABLE FOR COMMON MEASUREMENTS

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<td></td>
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<td>1 in = 25.4 mm 1 ft = 30.5 cm</td>
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<td>Length</td>
<td>inch (in)</td>
<td>millimetre (mm) or centimetre (cm)</td>
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<tr>
<td></td>
<td>foot (ft)</td>
<td>centimetre (cm) or metre (m)</td>
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<tr>
<td>Mass</td>
<td>ounce (oz)</td>
<td>gram (g)</td>
<td>1 oz = 28.2 g</td>
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<td></td>
<td>pound (lb)</td>
<td>gram (g) or kilogram (kg)</td>
<td>1 lb = 454 g</td>
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<td></td>
<td>ton</td>
<td>tonne (t)</td>
<td>1 ton = 1.02 t</td>
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<td>Volume</td>
<td>fluid ounce (fl oz)</td>
<td>millilitre (mL)</td>
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<td>pint (pt)</td>
<td>millilitre (mL) or litre (L)</td>
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<td>quart (qrt)</td>
<td>millilitre (mL) or litre (L)</td>
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1.0 INTRODUCTION

The majority of early Australian glassware and a high percentage of later glassware is undecorated and unembosses. Often, in order to date and identify a plain glass item it is necessary to establish its method of manufacture and historical context. For this reason an illustrated outline is given of manufacturing techniques and equipment, including where possible, dates of manufacturing changes in Australia and overseas, and changes in appearance that result from technical innovations.

Particularly from 1830-40 onwards, the use of moulded designs and embossed lettering on glass became popular. Fortunately, the identification of designs and letters on bottles such as medical cures, food and carbonated drink containers, may provide evidence for the date of manufacture and function of glassware.

2.0 TRADITIONAL BLOWING AND FORMING

2.1 Traditional methods

The first imports of glassware into Australia were manufactured by traditional methods which had remained virtually unchanged since their inception. Figure 1 illustrates these same processes in operation in Australia about 1878.

Figure 1. The Australian Glass Company's works in Richmond, Victoria c. 1878. The Illustrated Australian News. Melbourne, 10 June 1878, p. 105.
The major stages in traditional glass manipulation are illustrated and described below and may be identified in the early artist's impression, Figure 1.

a. The gathering end of the hollow blowing iron is dipped and rotated on the surface of the syrupy glass in the pot or tank furnace so that a quantity of glass wraps around the end.

b. The glass is rolled on a smooth plate called a marver to shape it. This procedure is known as marvering.

c. A small bubble is blown in the glass by the craftsman blowing down the pipe. A further heavier gather may be needed to get the right quantity of glass for subsequent operations.

d. The glass is necked to reduce the waste glass (or moyle) on the blow-pipe and form the neck.

Figure 2 a-d. The major stages in traditional glass manipulation.
TRADITIONAL BLOWING AND FORMING

e. The glass is shaped in a hollow wooden block mould as required. This procedure is sometimes referred to as 'blocking'.

f. The glass is blown further.

g. Shaping continues by patting on a flat plate.

h. The glass may also be swung for shaping by elongation.

Figure 2 e-h. The major stages in traditional glass manipulation.
i. The half-formed shape or parison that results is rotated and further tooled on the chair. The skilled craftsman uses appropriate tools and reheats the glass when necessary.

j. A second member of the team (or 'chair') gathers an amount of hot glass on the end of a solid iron rod termed a pontil and merves it.

k. The pontil rod is precisely centred on the partly shaped bubble of glass opposite the blowing iron. See Fig. 3.

l. The blowing iron is broken away ('cracked-off') with a sharp-edged dampened steel.

m. The glass is reheated to a higher temperature at the mouth of the main furnace or subsidiary furnace often called a 'glory hole'.

Figure 2 i-m. The major stages in traditional glass manipulation.
n. The vessel is sheared to size and the edge glazed-over (fire-finished).

o. The vessel can now be opened-out and shaped with tongs.

p. Attachments such as jug handles are applied hot from another steadied gathering iron.

q. Directly after stage m, a collar (often called a string-rim) may be applied as a hot viscous stream from a steadied gathering iron to a rotating bottle shape. This process is illustrated in Fig. 4.

r. After breaking off the pontil rod (not illustrated), the jug or bottle is then carried in a wooden or sheathed metal fork or box-shaped carrier to the annealing oven. There, it is slowly cooled to room temperature in the oven over several hours. The latter process is called annealing.

Figure 2 n-r. The major stages in traditional glass manipulation.
Traditional methods of **free-blown** glass manufacture are still practiced today as shown below in Figures 3, 4.

**Figure 3.** Centring and attaching the glass-tipped pontil so that the shape rotates on its axis during later manipulation. (O. Jones, *Parks Canada Glass Glossary*, Environment Canada - Parks, 1985 p. 20)

**Figure 4.** Applying a stream of additional hot glass from a steadied blowing-iron to form a reinforcing collar (often called a string-rim) round the cracked-off neck of the bottle. The glass-tipped pontil iron, which supports the boute, is slowly rotated by the craftsman on the arms of the glass-maker's chair. (O. Jones, *Parks Canada Glass Glossary*, Environment Canada - Parks, 1985 p. 20.)
The tools used in these traditional methods are relatively simple as the selection in Figure 5 illustrates.

a. **Blow-pipe** - a hollow metal rod for gathering and manipulation.

b. **Pontil** - solid metal rod used for gathering, support and manipulation.

c. **Ruler** - metal, used for measurement.

d. **Shears** - large and made of metal for cutting stiff glass.

e. **Pointed tool** - metal point in a holder for grooving and opening.

f. **Tongs or Pucellas** - large blunt metal or wooden-tipped tongs (similar to sugar tongs) for smoothing, elongating and opening stiff glass.

g. **Paddle** - surface-charred wood for flattening and shaping.

h. **Pincers** - made of metal for holding, grooving and tapering.

i. **Cup or Block-mould** - surface charred wood for rounding and shaping.

Figure 5. Simple tools used to manipulate molten glass.
2.2 Characteristics of glass made by traditional methods

The use of traditional tools, such as those illustrated in Figure 5, produces glassware which may exhibit any or all of the following characteristics in Sections 2.2.1 - 2.2.7. However, it should be noted that as a result of the artistic freedom of blowing glass by the traditional methods illustrated in Figures 2a-r, there is sometimes little or no evidence of marks on the surface of the finished glass. Consequently, it can be quite difficult to assess how glassware of the highest artistic standards was made.

2.2.1 Free-blown fire-polished surfaces. These are formed when glass is blown and shaped freely in air and does not contact tools or moulding surfaces. Such freely-cooled surfaces are quite smooth and brilliant unless the bulk glass itself is poorly melted and shows striae, or streaks, of differing composition or colour. The surface of the glassware will also be free of raised seam marks (formed by joints in moulding equipment) or other tool marks. The terms free-blown, hand-blown and hand-made are sometimes used quite loosely to describe traditionally blown glassware. However, the term free-blown cannot be used when hand-gathered glass is blown into moulds.

2.2.2 Striae. The striae in the foot of a wine glass in Figure 6 are caused by slight differences in refractive index within the bulk glass. The rapid stretching of the hot glass, by spinning in a former, causes circular flow lines and accentuates any refractive index differences occurring during rapid cooling.

![Figure 6](image)

The foot of a wine glass made by spinning in a former, shows circular striae (from slight refractive index differences in the bulk glass) and circular turn marks.

(Photo David Kemp.)

2.2.3 Turn marks are formed on the surface of traditionally blown glassware as a result of movement between the glass and the surface of any former or mould. These markings, particularly in clear glass, are readily visible on holding the glassware at an angle to the light. Obvious turn marks often occur on the surface of round bottles which have been formed by rotating the glass on the pipe in wooden or paste-moulds. These marks occur particularly after c. 1870 when paste-moulds were invented and labelling was more widely adopted.
2.2.4 **Tooling marks** result from the use of tongs or other tools for shaping stiff glass using considerable force. These marks are usually much deeper than turn marks and may form quite deep grooves in the surface. For example, twisted folds (which may be up to one millimetre wide) often occur in the neck of a free-blown bottle where the glass has been subject to **necking** by the tongs. (Fig. 7) Tongs are used to ensure that the neck is as narrow as required and the amount of waste glass (**moyle**) left on the blow-pipe is minimal.

![Diagram of additional reinforcing glass wrapped around the top of a bottle showing twisted folds and tooled join. The process of adding glass is similar to that shown in Figure 4.](image)

**F** Twisted folds in the neck  
**TJ** Tooled join of additional shaped glass around the neck.

Light surface turn or tool marks (not shown) are usually visible on the collar.

Apart from light-walled glass bulbs and phials, which are still made by machine spinning, the existence of such turn and tool marks on pieces of glass is an indication of traditional manufacture. For commercial glass such as bottles, these marks usually mean their manufacturing date is before c. 1900-20.

2.2.5 **Join marks** (which may be tooled or untooled) are formed by the natural flow line of hotter viscous glass as it joins with cooler, stiffer glass, usually in the later stages of the traditional process. Their appearance depends on the shape of the glass parts to be joined and the extent to which the glass has been further reheated and shaped by tools or formers.

For example, **untooled** joins occur at the two ends of a traditionally made jug handle (Fig. 2p), at the join of the stem and base of a wine glass (Fig. 6). They also occur at the horizontal inner join of the hot glass layer wrapped around the top of a handmade bottle (Fig. 8b) and this particular join is an identifying feature of most traditionally made bottles after c. 1800. Its existence can be confirmed by holding the neck and collar up to the light or by carefully placing the finger inside the neck of the bottle.

The join of two pieces of hot fluid glass is not often so clearly visible - the shaped or tooled overlapping ends which constitute the collar of a traditionally made bottle, often form a fine tongue-shaped marking (**TJ**
as illustrated in Figure 7). The shape of this mark will depend on the shape of the ‘tail’ left after cutting the stream of hot glass when the collar is applied (Fig. 2q).

This type of **tooled join** is a feature of many traditionally made bottles. However, the join can be completely obliterated by rotation against a moulding surface as in Figure 8a, when the overlapping ends are hot and fluid where they join.

![Diagram of tooled join](image)

**Figure 8.** Additional reinforcing glass on bottle top showing turn marks and inner joint.

**2.2.6** **Pontil marks** are formed on the base of glassware where the pontil rod is broken off the main body. They are essentially circular and rough and often display surface cracking and adhering glass particles. In crystal tableware the pontil mark is usually ground away. Consequently, the area of attachment of the pontil may only be detectable by a slight difference in reflection over a circular area of the under surface.

In bottles, the pontil mark is inside the push-up at the base of the bottle. Variations in the appearance of the pontil mark and changes in the shape
of the push-up can imply differing empontilling techniques (Fig.9). (See also Sections 4.1, 4.2.)

![Figure 9. Three early beer or wine type bottles from Camden. The first shows a jagged pontil scar often referred to as a glass-tipped or ‘open’ pontil mark. The second shows a less sharp pontil mark. In the third, the pontil has been attached over a wider area and was probably a ‘sand-pontil’. (J. Vader & B. Murray, Antique Bottle Collecting in Australia, p. 5.)](image)

2.2.7 **Non-repetitive shapes** are usually formed by traditional blowing and forming methods. The items are often not uniform in size and shape from piece to piece compared with moulded glassware, although the skill of the glass-blower should not be underrated in this respect. To some extent moulded glass may also have some of these characteristics, as the glassware can distort (or slump) if overheated during annealing. Crude methods of moulding can also result in slight variations in dimensions.

2.2.8 **Summary.** The identification of features such as the presence or absence of turn marks (Section 4.4.4), pontil marks (Sections 4.2, 4.3.3) and particularly tooled additions, such as collars in bottles (Sections 5.1 - 5.10), can provide considerable guidance in dating and identifying traditionally blown glass. However, dating can prove difficult if only the preceding seven basic characteristics are considered without a detailed knowledge of shape and style development.

2.3 **Early glassware and forming methods in historical context**

Establishing the date of manufacture and the function of a piece of glassware is usually also dependent on a knowledge of the historical development of shape and style of such articles during the period of their manufacture.
The following examples of Australian glassware, designed and used for specific purposes during the first half of the nineteenth century, have been selected to illustrate the value of using combined archaeological and documentary material. From such evidence it is often possible to deduce the timing of changes in styles and of the introduction of new blowing and moulding techniques. Advertising material from the *Sydney Herald*, *Sydney Morning Herald* (S.H.) and the *Sydney Gazette* (S.G.) is particularly useful.

2.3.1 Tableware. One of the features of the period up to c. 1840 was the high standard of living adopted by the military and free settlers. This standard is reflected in early references to imports of lavish goods such as mirrors, candelabra and tableware. The tableware included tumblers, goblets, rummers, claret cups and other wine glasses, decanters, carafes, jugs, fingerbowls, wine-coolers, cruet sets, salts, custards, jelly-glasses, butter dishes and candle shades. In spite of an early attempt to manufacture glass locally by Simeon Lord and John Hutchinson (SG 6.6.1812), Britain provided the major source of such glassware for many years. (Ref. 82). Of the many British companies involved in exports from London, Leith, Cork and elsewhere between c. 1750-1830 some are known to have exported tableware - such as: Whitefriars Glassworks off Fleet Street, London (later James Powell & Sons) (Ref. 82), Apsley Pellatt & Co., the Falcon Glassworks, Blackfriars, London (Ref. 70), Caledonian Glassworks Ltd. (later Holyrood Flint Glassworks, Edinburgh, Ref. 82), and the Cork group of companies (Ref. 79). The Cork group was then free of the British tax on glass and included the major companies of Cork Glass Co. (1783-1818), Waterloo Glass Co. (1815-35), and the Terrace Glass Works (1818-41).

At times it is possible to document sources, designs and dimensions of imported wares.

For example, although the Napoleonic Wars probably prevented import of the well-documented Waterford designs (Ref. 79) during c. 1790-1820, a John Atkinson ‘opened’:

‘... an elegant Assortment of Rich DIAMOND CUT GLASS WARE consisting of Quart and Pint Decanters, Water Jugs, Wine Glasses, Coolers, Shades etc ... [sic]’ (S.G. 14.8.1823 p. 4)

The popular Anglo-Irish three-ring decanter design is extensively documented. (Refs 82, 78) For example, 100 dozens each of quart, pint and half pint three-ring decanters were imported from London by Michael Phillips, Kent Street, Sydney on the *Francis Charlotte* (S.G. 7.11.1835, p. 3).

The Jelly Glasses in Figure 11 were possibly imported from Pellatt & Co., Falcon Glassworks, Southwark, London, in 1832 (Ref. 39). Pellatt claimed at the time that they were made from sand sent by James King from Sydney. This claim seems unlikely as our local sands contain heavy minerals which would discolour the glass. The non-pontilled Jelly Glass
corresponds closely to design No. 19 listed in Apsley Pellatt's catalogue published about 1840. A general assortment of tableware from this company, stated to be made from sand on the Vaucluse estate of W.C. Wentworth was also imported (S.G. 11.11.1840). The major feature of the glasses is the simply moulded half fluting.

Figure 10 a,b. Early Anglo-Irish style tableware. (Reproduced by kind permission of the Trustees of the Museum of Applied Arts and Sciences.)

Figure 11. Jelly Glasses possibly made from sand sent by James King to the Falcon Glassworks of Pellatt & Co., London. c. 1832 (Ref. 39). (Reproduced by the kind permission of the Trustees of the Museum of Applied Arts and Sciences. MAAS A365/1:2)
Many of the decanters, fingerbowl?, butter dishes, jugks (Refs. 78, 82) and carafes between c. 1820-60 also had similar distinctive base flutings which were formed using simple wooden patterned dip moulds (Fig. 11). Some Irish companies lightiy inscribed their names on the bases of individual pieces. The prevalence of such designs from both English and Irish sources, is apparent from Apsley Pellatt’s catologue. Further evidence of these designs in the form of ribbed and cut salts, ringed carafes and decanters and cut wine glassks is to be found in artefacts from wrecks off the Western Australia coast - the wrecks of the James Mathews (1841) and the Eglinton (1852) and in recent finds in wells in the Rocks area of Sydney.

![Designs of glass cadies from Apsley Pellatt catalogue c. 1840](image)

*a. Cadies, 12 oz engraved, each*  
*b. Cadies, 16 oz cut variously, each*  
*c. Cadies, 1 lb 8 oz, cut variously, scalloped edge, each*  
*d. Cadies, 2 lbs, very richly cut, each*

2 shillings  
3 to 4 shillings  
5 to 6 shillings  
7 to 9 shillings

**Figure 12.** Designs of glass cadies from Apsley Pellatt catalogue c. 1840 (Hugh Wakefield, *Early Victorian Styles in Glassware*, p. 50.)

![Four-piece moulded glass cadie with eight panels of relief decoration](image)

*Figure 13.*  
Four-piece moulded glass cadie with eight panels of relief decoration. The rim is irregular and a sunburst decoration is cut into the basal surface of the foot. (Reproduced by the kind permission of the Trustees of the W.A. Maritime Museum. *Eglinton* catalogue EG 890.)

The comparison between Apsley Pellatt’s design b (Fig. 12) for a moulded glass cadie, c. 1840, and a Cadie from the wreck of the Eglinton (Fig. 13) serves to emphasise that identification of whole or fragmented
free-blown tableware, is usually dependent on a detailed knowledge and recognition of shape and style.

These examples of fluted and octagonal shaped tableware confirm the early adoption of a high standard of moulding from c. 1750-80 onwards. Indeed, cut and engraved tableware at the 1851 exhibition is comparable with that made today. This development contrasts with the later and slower adoption of moulding methods for common beer and wine bottles.

2.3.2 **Typical apothecaries’ glassware** is illustrated in the trade card of the London firm Price & Co. (Fig. 14) and in an 1824 painting by E. Bristow (Fig. 15). Price’s ‘Essential Salt of Lemons ... perfumeries etc ...’ are noted as being on sale in Sydney in the early 1800s (S.G. 5.8.1830, p. 3).

![Image of a trade card](image)

**Figure 14.** 1809 Trade Card of Price & Co., Chemists and Druggists. (Crellin & Scott, A Survey and Guide to the Wellcome Collection of British Glass, 1600-1900, p. viii, Fig. 1.)

Apothecaries’ glassware was used for four main purposes: show-globes and jars for display, carboys for liquid storage and display, phials and medical flats for dispensing and ground stoppered bottles for storage (Figs 14, 15, Ref. 47).

Advertisements in the *Sydney Gazette* of 1834 and 1835 indicate that the capacity of show-globes used in Australia was up to approximately 12 quarts (13.6 litres) (S.G. 4.9.1834, p. 1). In 1843 show-jars and cylinders were sold as part of the insolvent estate of J.A. Campbell, Druggist, George St Sydney (S.H. 4.9.1843, p. 3). Eight fluid ounce (227 mL) and sixteen fluid ounce (454 mL) cylindrical and conical glass measures,
together with graduated wine glasses, were also auctioned during the 'hungry forties' (S.H. 18.3.1845, p. 3).

Show-globes etc. are one type where little or no change in style or manufacturing technique took place from approximately 1750 to as late as 1920. Apart from turn-marks, due to the use of paste-moulds as opposed to free-blowing after c. 1880, or the presence of gilding, lettering or other decoration, there appears to be no way to date such glassware other than by comparison of glass density values or composition, or by detailed laboratory inspection of the surface.

Figure 15. The interior of an apothecary's shop painted in 1825 by E. Bristow showing apothecaries' glassware. (Crelin & Scott, A Survey and Guide to the Wellcome Collection of British Glass, 1600-1900, Fig. 5, p. 7.)

In some instances it may be possible to make direct comparison with manufacturers' catalogues of the period. However, despite detailed research and access to information by suppliers back to 1750, the Wellcome Institute in London does not venture to place a date on any one item of its collection of this type of apothecaries' glassware. (Ref. 47.)
Early apothecaries’ phials for dispensing are small rounded flared lip bottles (Figs 16, 17). By the 1840s phials were available in ‘best green’ or ‘whites’ (clear) and in a range of standard capacities: 1/2, 1, 2, 4, 6, 8, 12 and 16 fluid ounces (usually measured to the neck/shoulder join). This practice continued right through to the first half of the twentieth century. Phials and medical flats were described by their capacity e.g. a ‘four ounce phial’ or an ‘eight ounce flat’.

Figure 16. Advertisement from the Norwich Gazette of 1727 showing a woodcut of an apothecary bottle. (From: G. Wills, English Glass Bottles, 1974)

Special types of bottles were sometimes used for ‘cures’. As in the U.S.A., the popular British cure, Daffy’s Elixir (1680) and Turlington’s Balsam of Life (1744) were imported into Australia quite early (S.G. 15.4.1820, p.4, 13.3.1823, p. 1). Although Daffy’s Elixir is thought to have been sold in all kinds of bottles (Ref. 81), Daffy’s empty bottles, presumably of a type identifiable to buyers, were auctioned in Sydney on 22 April 1842. Later in the century, Daffy’s was sold in the U.S.A. in octagonal bottles with moulded lettering on the body. Initially, Turlington’s Balsam, was sold in violin-shaped bottles (Ref. 13). One example in the U.S.A. carries the embossed date 25 March 1750 (Ref. 81), thus making it one of the earliest apothecaries’ bottles marked in this way. A wide variety of such cures was marketed in Australia, in Europe and in the U.S.A. throughout the nineteenth century.

Apothecaries’ storage bottles normally have ground glass stoppers, are both round and square, gilt-decorated and labelled, and in sizes ranging up to one quart (40 fluid ounces, 1.1 litres) capacity (e.g. S.H. 18.7.1843, p. 4).

From the above evidence it appears that dispensing and storage bottles, particularly clear or pale-green bottles of capacity below about 6 fluid ounces (0.17 litres), are likely to be found in Australia with engraved lettering or designs (Section 4.4.5.) from first settlement, in marked contrast to common dark-green (‘black’) or amber glass artefacts. In these colours embossed lettering rarely occurs, at least on the body of the bottles, before the introduction of machine made bottles after c. 1900-20.
2.3.3 Food bottles. The expensive clear and pale-green bottles were also used for early imports of bottled foods (Fig. 18). These imports constituted a semi-luxury trade. Preserved fruit, for example, 'English preserved gooseberries in bottles' (S.G. 9.7.1809, p. 1), 'pickles and squares' (S.G. 11.10.1826, p. 4), cost up to five shillings per bottle - that is, above the daily wage levels.


Documentary evidence indicates that square-shaped bottles were used for pickles and bottled fruit in the 1830s. For example, ‘... sixteen Flint [clear] Glass Squares containing twenty lbs of Rhubarb.’ were advertised for sale in Sydney in 1836 (S.G. 7.5.1836, p. 3).

Mustard was among the many imports of spices. Of a number of references to mustard imports, and particularly to Durham mustard (S.G. 8.10.1809, p. 1, S.G. 28.4.1821, p. 4), some imports appear to be in one quarter, half and one pound bottles (S.G. 2.1.1828, p. 4). Using a wide range of documentary and archaeological evidence, Olive Jones has characterised the different forms of powdered mustard bottles over the period c. 1750-1900 (Ref. 19). Jones' findings imply that the imports reaching Australia would probably be flat octagonal bottles with embossed lettering on the body, rather than the small two ounce, 1 1/2 inch (approx. 38 mm) squares.
Primary evidence for the shape of food bottles is provided by wrecks in West Australia (Figs 18 a-d). Two complete, round preserve bottles, and several bases and necks, with wider than usual mouths (31.8 mm, 1\(\frac{1}{4}\) inch bore), together with an octagonal fluted pale-green ‘2 lb’ or reputed quart pickle, and part of a flat octagonal green bottle with fluted corners, were all found on the James Mathews (1841). Two tall, round, pale-green bottles containing black currants and several square, pale-green pickle jars with fluted corners, two with cork and lead foil seals marked “Gunter & Co, Berkley Square, London”, were found on the wreck of the Eglinton (1852).

The use of moulded and sometimes embossed bottles of the more expensive clear and pale-green glass constituted a semi-luxury trade. The lesser amounts of these types of artefacts contrasts with the predominance of unmoulded and unembossed ‘black’ glass artefacts found in this early period.

a. Pale-green, circular preserve bottles
Ht: 264/5mm (10\(\frac{9}{16}\) inches)
Bore: 32.5mm (1\(\frac{1}{4}\) inches)
(Reprinted from Historical Archaeology, 1983, 17(1), p. 76, by permission of the Society of Historical Archaeology.)

b. Pale-green London mustard bottle.
Ht: 128mm (5 inches)
Bore: 19mm (\(\frac{3}{4}\) inch)
Base: 43 x 66mm (1\(\frac{1}{16}\) x 2\(\frac{5}{16}\) inches)

Figure 18 a,b. Typical shapes of early food bottles.
2.3.4 **Wine/beer bottle characteristics.** Common 'black' bottles were manufactured cheaply from impure materials and were used for a variety of purposes. Changes in their shape and form are closely associated with changes in forming and moulding techniques. These are described in detail in Sections 4.1-4.4.

For bottles containing special wines, the practice developed of placing a blob of hot glass on the side of the bottle, on which the date of the vintage, the name or trade mark of the brand, or the name of the owner, was impressed with an engraved metal seal.

After the close of the Napoleonic wars a wide variety of these vintage wines was imported into Australia, including for example, *50 dozen cases of very superior Champagne, 50 ditto ditto Lafitte claret, Si*
TRADITIONAL BLOWING AND FORMING

_Estaphe, Madeira, Marseille, Cote Rotie," [sic] (S.G. 8.12.1828, p. 3),
'St. Estaphe, Chateaux Margaux', (S.G. 27.12.1831, p. 4), and '... a few
cases of Hock, Chateaux Larosse, and Red Hermitage, very superior ...'
(S.G. 17.4.1840, p. 2).

Many of these vintages continued to be advertised throughout the
nineteenth century. Occasionally, examples of bottles with such seals are
found, particularly on early sites such as First Government House in
Sydney, Regentville, Port Essington (Ref. 83), the Northern Territory and
on wrecks. Figure 19 shows seals from bottles that contained the
Bordeaux wines Chateau Lafitte and Margaux Medoc Rauzan from the
First Government House site in Sydney.

![Wine bottle seals from First Government House site in Sydney.](image)

One of the easier shapes to form from the natural shape of the viscous
glass parison was the onion-shaped common wine bottle (Fig. 20). This
shape was gradually ousted by a straight-sided, squat bottle that could be
laid on its side in the cellar thus saving space and keeping the cork wet
and airtight. These first 'straight siders' or mallets were probably blown
in the normal way using cup or block tools. (Fig. 5). They were then rolled
on the marvering table to give the generally vertical body (Fig. 2). Some
bulging of the wall near the base would result from forming the push-up
or from slumping in the annealing chamber.

From c. 1750-80, these bottles became longer and narrower with high,
round shoulders like a heavy version of a modern port wine bottle (Fig.
20). The bulging of the base only disappeared between c. 1820-30. Whilst
cup or block moulding tools were used to effect these changes (Fig. 5),
there was also an increasing use of dip-moulds. After c. 1820 three-piece
moulds were introduced.
Figure 20. The development of the wine bottle. (Largely based on Noel-Hume, 'The Glass Wine Bottle in Colonial Virginia', *Journal of Glass Studies*, V3, 1961, pp. 99, 100.)

Using evidence from published details of named and sealed bottles and the extensive study by Noel-Hume (Ref. 27), the general changes in shape over time are illustrated in Figure 20. In Australia, shapes of these types are observed most notably on wrecks in West Australia. Using Figure 20, bottles found on the Zeewijk (1727) correspond closely with shape 'g', on the Rapide (1811) with shapes 'k' and 'l' and on the James Mathews (1841) with shapes 'l' and 'm'.
Up to 1,800 measurements on dated sealed bottles (Ref. 22) indicate that three bottle sizes were used side by side in Britain:

<table>
<thead>
<tr>
<th>Bottle Type</th>
<th>Volume Description</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reputed quart</td>
<td>26\frac{2}{3} fluid ounces</td>
<td>(approx. 758 mL)</td>
</tr>
<tr>
<td>Queen Ann wine quart</td>
<td>33 fluid ounces</td>
<td>(approx. 940 mL)</td>
</tr>
<tr>
<td>Imperial quart</td>
<td>40 fluid ounces</td>
<td>(approx. 1140 mL)</td>
</tr>
</tbody>
</table>

Table 1. Bottle measures and capacities used in Britain in the early 1800s.

By the early 1800s the **reputed quart** was the size commercially preferred. In Australia, the contents of wine bottles were reported to be 24-26 fluid ounces (681-738 mL) at that time (S.G. 22.3.1817, p. 4). In 1824 the **reputed quart** was eventually recognized legally as one sixth of the new Imperial gallon (i.e. 26\frac{2}{3} fluid ounces, 758 mL).

The characteristics of common ‘black’ wine and beer type bottles found on early sites from c. 1800-20 would include:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Green to very dark-green (‘black’) or amber</td>
</tr>
<tr>
<td>Reinforcing Collar</td>
<td>Up to 20 mm (\frac{3}{4} inch)</td>
</tr>
<tr>
<td>Capacity</td>
<td>681-711 mL. (24-28 fl oz.) to a point 25-50 mm (1-2 inches) below lip</td>
</tr>
<tr>
<td>Height</td>
<td>Below 292 mm (11\frac{1}{2} inches)</td>
</tr>
<tr>
<td>Diameter</td>
<td>Below 102 mm (4 inches)</td>
</tr>
<tr>
<td>Shape</td>
<td>May have base corner sag due to annealing or pontil attachment</td>
</tr>
<tr>
<td>Pontil</td>
<td>Glass-tipped or sand-pontilled</td>
</tr>
<tr>
<td>Push-up</td>
<td>Present in some form</td>
</tr>
<tr>
<td>Mould seam</td>
<td>Absent</td>
</tr>
</tbody>
</table>

Table 2. Characteristics of common ‘black’ beer and wine type bottles c. 1800-20.

Two main types of ‘black’ bottle occur: the low-shouldered wide ‘beer’ shape and the taller narrower high-shouldered ‘wine’ shape. Longer bottles for some German wines appear to be the first departure from the
normal shapes. A bottle from the James Mathews wreck of 1841 is 310 mm high (12\(\frac{1}{4}\) inches) and 80 mm (3\(\frac{3}{8}\) inches) wide.

From this brief outline on wine/beer bottles, it is evident that the characteristics of cheap ‘black’ glass products contrast markedly with those of clear and pale-green bottles. Up to c. 1840-50 mould seams are often absent, that is, the bottle has been blown by traditional methods. During the remainder of the nineteenth century, the three-piece shoulder markings are less easy to detect than the two-piece and base-plate markings of clear glass artefacts. Also, up to c. 1890-1920 the body of the majority of common glass bottles is rarely embossed. This aspect is discussed in detail in Section 4.4.

2.3.5 Re-use of bottles. From the outset only a small proportion of the early shipments of wine, of the order of ten per cent or less, came in bottled rather than cask form. An empty bottle was a valuable commodity. Consequently, there are numerous references to used bottle sales and part payment for returned empties.

Up to six shillings per doz
en were offered for empty wine bottles during the Napoleonic wars (e.g. S.G. 13.11.1813, p. 2). Prices remained high at four shillings per dozen over thirty years later (S.H. 23.11.1843, p. 4). Also, as now, good wine was bottled for long periods and it appears from early newspapers that it was at times sold in Sydney over twenty years after being imported. This frequent re-use of bottles needs to be considered if any attempt is made to date a site by its glass artefacts.

2.3.6 Summary. The above outline on early, selected examples of tableware, apothecaries’ glassware, food containers and wine/beer bottles, highlights the potentially wide differences in the development of shapes and styles, embossing of names, dates and trade marks, and of mould and other marks which result from varying manipulative techniques. These possible dating criteria are not necessarily the same for luxury products and for common ‘black’ glass bottles.

3.0 EFFECTS OF BRITISH EXCISE DUTIES, 1746-1845

Flint glass development differs from that for common bottles because of the effects of the imposition of duties on glass in Britain briefly in the 1600s but more particularly during the one hundred years between 1746 and 1845. In the latter period, these duties virtually separated the ‘flint’ and common bottle trades by the application of strict excise laws and regulations (Ref. 3). The excise duties for the two types of glass were very different. Between 1770 and 1845, the tax for flint glass, which after 1777 included phials, varied between 9 shillings and 4 pence to 98 shillings per hundred weight. The tax for common ‘black’ bottle glass was much lower, but still excessive, and ranged from 2 shillings and 4 pence to 8 shillings per hundred weight (Ref. 32).
### Table 3. Rates of duty on British Glassware 1770-1845.

This tax was a crippling imposition in relation to the value of money at the time and made colourless and pale-green bottles a luxury. The excise regulations were equally Draconian. Up to three excise men were allocated to each glasshouse, twelve hours notice was required (sometimes in writing) to fill a pot and advise the weight of materials used, while the grating of the annealing arches had to be securely locked after all the glassware had been deposited (Ref. 28).

A phial was defined as having a capacity of 170 mL (6 fluid ounces) or less, and makers of common bottles did not go below this limit. The revised Act of 1811 set this limit at a reputed half pint (178 mL, 6 1/4 fluid ounces) but as attested by Apsley Pellatt and William Powell to the 1835 Commissioners, they were effectively not allowed to make under 6 ounces (170 mL) in common black glass.

In effect this was also a direct tax on apothecaries. At its highest level, between 1815 and 1834 after the end of the Napoleonic Wars, the tax amounted to approximately six pence on each bottle compared with a labourer’s weekly wage.
FORMING AND MOULDING AIDS

of approximately five shillings. As the Statute 51 c68 by George 111 so aptly states;

"The manufacturers of glass are prohibited from making any sort of glass or glassware other than flint glass in any glasshouse entered [listed] for making flint glass." (Ref. 28)

As a result of these limitations and excise laws between 1746 and 1845, there was almost a complete separation in Britain of the luxury clear flint glass from the common ‘black’ glass trade.

Innovative methods of moulding, embossing or deep cutting were introduced for flint glass bottles and crystal tableware between c. 1750 and 1850. In contrast, older cheaper methods, using wooden moulds and push-ups, were only completely displaced for common wine/beer bottle manufacture between c. 1820 and 1860-70.

Examples of this dichotomy of development between clear and common ‘black’ glass will be considered in the assessment of changes in manipulation techniques and equipment in the following discussion of forming and moulding aids and methods (Sections 4.0, 5.0, 6.0).

These severe manufacturing limitations and the marked differences in excise duty between different forms of glass up to 1845 also serve to explain the dearth of colourless and pale-green glass artefacts on early Australian sites. They also highlight the need to consider such finds separately from the ‘black’ or amber glass.

4.0 FORMING AND MOULDING AIDS

Throughout the nineteenth century, much of the evidence for identifying and dating glassware will depend not only on recognising changes in shape, style and embossing designs, but also on the surface markings and mould seams created by the different forming and moulding aids.

4.1 Push-ups

One of the main features of glassware such as tumblers, flasks and bottles, however they are made, is that the base is not flat. The centre of the base is pushed up to some degree into the body of the article. The push-up is usually deep when the article is traditionally made, as it is the area where the pontil is applied to hold the glassware for the shaping of the rim or for the application of an additional reinforcing collar.

The main purposes of the push-up are:
* To ensure that the article stands upright, without wobbling, if the base is not flat. This applies to early and late bottles.

* To keep the roughened or adhering glass from the pontil away from the surface on which the article stands.

* Possibly to distribute and cool the hotter and thicker glass which collects at the bottom of the shape during traditional manipulation.

* To prevent cracking-off in large bottles by undue leverage on the pontil during finishing.

* To provide a means of readily turning bottles in a stack using the fingers and thumb. This procedure is still followed in traditional champagne manufacture.

In traditional methods of making glassware, the craftsman is at liberty to choose any tool, piece of wood or metal, hand-held or fixed mould, or even, in recent years, dampened sheets of newspaper to shape hot glass to form a push-up. It is not always possible to define the method used from the appearance of the base of the article. Thus, the value of the push-up for identification and dating may be limited.

The shape and form of push-ups and pontil marks were described in 1968 by J.H. Toulouse (Ref. 31) and Olive Jones assessed the dating of these different forms in 1971 using examples from Canadian sites (Ref. 18). The task here is to relate their and other findings to the Australian context, as it is known at this stage, and also to link the markings with changes in equipment.

Different types of tool or moulding equipment appear to have been used to form push-ups. Each has typical characteristics useful for identification and dating and are as follows:

4.1.1 Shaped metal or wood piece. The usual forms used to shape the push-up appear to have been either a hand-held piece of shaped metal plate, a mollette (Ref. 18), or a shaped piece of wood - even the wooden handle of a glass-making tool such as a paddle. The shapes formed by pushing these tools into the rotating, hot base of the shaped bottle are shown at the stage of pontil attachment in Figures 21 and 22.

The rounded conical profiles (Fig. 21) are usually associated with narrow glass-tipped pontil marks 25-35 mm (approximately 1-1\(\frac{3}{8}\) inches) diameter, often used in early wine bottles up to c. 1750. The hemispherical/dome shaped profiles (Fig. 22) are usually shaped in order to accommodate much wider sand-covered pontils 40-70 mm (approximately 1\(\frac{3}{8}\)-2\(\frac{3}{4}\) inches) and were used extensively for English wine bottles between c. 1720-1870. By this time holders came into wide use - even for common bottles.

4.1.2 Pointed metal or wood piece. Very sharply pointed push-ups were apparently formed by a spiked piece of wood or metal. Their use was
largely confined to the narrower medicine bottles, phials and oil bottles where it was necessary to avoid distorting the bearing surface (Fig. 17). The steep cone formed also reduced the pontil contact area.

Moulding and holding techniques appear to have been adopted more quickly for expensive 'medicals' than for common bottles. Thus, this sharp type of push-up may well apply more to such bottles prior to c. 1800. Pointed push-ups are not a feature of the many tall narrow oil bottles of the gold rush period c. 1850-70.

4.1.3 Metal rod. A metal rod, similar to a pontil, was sometimes used to push up the centre of the base. The end of this rod may be flat or divided into quadrants (Figs 23, 24). Examples of these rods are still in existence.

Distortion in the base profile and either a faint, or quite clear quatrefoil impression 15-50 mm (approximately ⅜-2 inches) diameter are often visible within the pontil contact area. Again (Fig. 24), the grooved quadrant reduces the area of contact when attaching the pontil, the difficulty in cracking-off and the roughness of the pontil mark. This form of push-up and pontil mark (Fig. 24) is found in many English wine/beer type bottles from c. 1700-20 onwards until holders were adopted for these common bottles c. 1830/40-1860/70.

Generally, as narrower, taller, cylindrical bottles became popular between c. 1750-1800, narrower rods were used giving smaller quatrefoil impressions.
4.1.4 **Ricketts' push-up device.** This device, together with a lettered metal ring, formed the base of Ricketts' mould equipment for the manufacture of 'black' (dark-green) wine and other bottles to accurate dimensions (Fig. 25). The first patent to this Bristol company was granted in 1821 in British Patent No. 4623 (Ref. 17). Bottles with 'H. Ricketts & Co., Glassworks, Bristol' embossed on their bases can be dated 1821-53 when the company amalgamated with another Bristol company, Powell & Filer (Appendix 2).

The distinguishing features of this type of bottle, embossed on the base with Ricketts or other trade-names are:

* the ring of embossed lettering around the base (occasionally remains unembossed)
* the slightly raised circular mould seam on the outer resting edge
* the corresponding raised inner circular mould seam
* the area inside the lettered ring where the marks caused by the attachment of the pontil remain.

The Ricketts type bottle is the one case where moulded lettering appears on the base of a bottle at the same time as a pontil mark.

Although the cheaper wooden moulds and the simpler three-piece moulds remained in much wider use for common bottles, Ricketts moulds were used by some companies in Britain, the U.S.A. and France up to c. 1900 (Ref. 17).

Figure 25. Appearance of bottle base formed from Ricketts’ push-up device, lettered metal ring and moulds.

4.1.5 Shaped push-up tools. As late as 1857, in a British patent, the South Yorkshire glass-maker, Breffit, confirmed that wooden push-up tools were still in use in Britain for forming common ‘black’ bottles. The patent was concerned with the impregnation of wooden moulds with water glass (sodium silicate solution) to prevent wear.
The push-ups of a number of bottles from the 1851 wreck of the *Eglinton* were probably formed by these specially shaped tools. (*Eglinton* Artefact Catalogue, types 755, 892. Ref. 84).

The formation of the push-up tended to cause the heel of the bottle to bulge outward. Continental, but not English glassmakers, appear to have remarvered their bottles to eliminate the bulge (Ref. 17). By the 1830s the bulged heel of common 'black' English wine bottles ceased to be a feature even for those blown in dip moulds. It is not clear how this was achieved but Barret and Clay, the London wine merchants, state that in 1842 the rounded base was "...pushed in afterwards by means of a conical mould." (Ref. 17).

It can be inferred, from a close study of the markings on the bottle base, that different forms of shaped push-up tool were used between c. 1820 and 1870.

![Cross section of bottle base showing push-up tool impression.](Image)

**Figure 26.** Possible forms of hand-held push-up tools.

The two common types in Figure 26 are identifiable first by a faint impression of the lower edge of the conical wooden tool, part way up inside the push-up and secondly, in some specimens, by a dome shaped point or cap at the apex of the push-up.

Three different types of tool appear to have been used. The two common types were evidently simple uncapped or capped wooden cones which could be replaced when worn (Fig. 26). The push-up could then have been formed by rotating the hotter fluid glass in the base of the bottle against the point of the conical tool, without the glass-blower leaving the chair.
Some bottles with the above characteristics sometimes have a reddish/black deposit distributed over the base of the bottle - the so-called 'graphite pontil'. This name arises because it was thought that graphite/oil suspensions (the glassmaker's 'oil-dag') may have been used at that time (c. 1840-60) as a high temperature lubricant to prevent hot glass sticking to the metal cap or completely metal push-up tool. Such parting agents leave black deposits on the glass on first application in metal moulds. Analysis of these black deposits by J.H. Toulouse has shown however, that these deposits are usually ferrous or ferric oxides caused by the high temperature oxidation of the metal parts of the push-up tools.

The more complex markings of a third type of push-up do not appear to have been satisfactorily explained. These markings are similar to the simpler forms shown in Figure 26, but with an additional mark or mould seam right on the outer circumference of the heel of the bottle. Figure 27 illustrates the most likely form of a three-part push-up tool which would cause the markings - a wooden cone held between a metal cap and a partially shaped 3-6 mm (1/8-1/4 inch) metal base-plate.

This suggested design would be a cheap renewable push-up, capable of being easily manufactured from wood and sheet metal without expensive machine shop facilities. For common bottles it would go some way to competing with the more precise but dearer three-piece all metal moulds being introduced by Ricketts and others between c. 1810 and 1860.
The characteristics of this third more complex type of base are:

* Glass distribution is often very uneven, presumably due to the uneven cooling and ‘parting’ properties of a metal/wood tool.

* The dome shaped impression, located at the tip of the push-up, may be slightly square or pointed.

* Iron oxide may be present in the impression as would be expected if a small metal tip penetrated the hottest, thickest part of the glass shape.

* A clear seam line may be visible as a slight projection around the outer surface of the bottle base.

* A rounded ridge, presumably corresponding with the lower possibly worn edge of a wooden cone, often occurs on the push-up surface close to the bearing surface. As would be anticipated if a tool like that in Figure 27 was used, this ridge is at a much lower level than similar impressions formed by a simpler conical tool.

### 4.2 Pontils

In addition to the reduction in area of the pontil scar by the preceding changes in shape of the push-up profile, the scar was also modified by the type of pontil. There are four emplanting techniques, each with its own characteristic surface effects.

#### 4.2.1 The glass-tipped (plain or open) pontil. This pontil is formed by dipping 16-19 mm (5/8-3/4 inches) diameter rod into hot glass. The pontil leaves adhering glass or pieces broken out over a base surface area up to approximately 30 mm (1 1/4 inches) diameter depending on the size of the rod used. (Fig. 21). Larger sized rods were used for heavier articles.

Glass-tipped pontils were used with early onion-shaped wine bottles with deep push-ups (Fig. 20) but are not found after c. 1720 in common ‘black’ English wine bottles (Ref. 31). This pontil was more commonly used for lighter tableware, flasks, medicine and toilet bottles. It is still often used in preference to a holding device for hand-made crystal, when the pontil scar is usually ground away. This method has the advantage of allowing the article to be precisely centred during manipulation (i.e. made to rotate on its axis). Centring is achieved by delicate adjustments to the rotating article just before the glass on the pontil sets.

#### 4.2.2 The sand-pontil. This pontil consists of a gather of glass, lightly dipped in sand and shaped to ‘seat’ on the domed or other shaped push-up (Figs 22, 24, 26).
Unless the push-up is specifically shaped to form a dimple or quatrefoil impression, almost the whole of the base surface between approximately 40-77 mm (16/10-3 inches) diameter is roughened by small glass chips and, sometimes, adhering particles of sand. However, the appearance of the sand-pontil mark is more acceptable than that formed by the glass-tipped pontil.

Sand-pontil marks are the commonest form of 'improved' pontil mark and are often found in English wine and other bottles between c. 1720 and 1870. Sand-pontils are still used for hand-made crystal glass.

### 4.2.3 The blow-pipe (or ring) pontil

The blow-pipe (or ring) pontil used the blow-pipe and the glass left on it (the 'moyle') after an article was cracked off as a pontil rod. When the ring-shaped mark (about the same size as the cracked-off neck of the bottle) is formed on the base any mould seams or embossed markings inside or outside the ring are left undisturbed (Fig. 28).

![Appearance of pontil mark on bottle base](image)

![Cross section of bottle base](image)

![Blow-pipe](image)

![Bare iron pontil](image)

**Figure 28.** The blow-pipe used as a pontil and the typical appearance of the base.

**Figure 29.** The appearance of the bottle base due to the bare iron pontil.

Clearly, a similar mark may also arise from a wide glass-tipped pontil applied to a deep push-up such as a sharply shaped conical push-up.
FORMING AND MOULDING AIDS

However, the ring shape resulting from a glass-tipped pontil would not be so clear.

The ring pontil technique was described by Diderot (Ref. 1) as placing the shape in a ‘V’ shaped stand whilst attaching the blow-pipe. Also, Olive Jones states that it often occurs in French ‘flower-pot’ shaped bottles in the eighteenth century. Typically, the ring pontil can occur in ‘case’ bottles, champagne bottles, flasks, apothecaries’ bottles and phials. It is generally associated with bottles of European origin and is not found in common ‘black’ English wine bottles after c. 1720 due to the extensive use of the sand-pontil.

4.2.4. **The bare iron pontil** leaves a circular depression in the centre of the push-up in the base of the bottle. This is caused by the red hot, suitably curved end of the iron pontil being pressed into the stiff glass surface (Ref. 31). Some distortion of the push-up tends to occur (Fig. 29), as it does when a similar metal rod is used to form the push-up itself (Fig. 24). The red hot iron may leave some reddish/black ferrous or ferric oxide deposit in the depression.

It is generally agreed that this type of pontil mark is found in more luxury bottled products of colourless or pale-green glass, such as carbonated drinks, preserved fruits, flasks etc., rather than in large common ‘black’ wine bottles. It appears to be confined to c. 1845-70.

4.2.5 **Summary.** From the work of Toulouse (Ref. 31), Jones (Ref. 18) and others, it appears that push-up shapes and pontil marks only provide an aid rather than a decisive guide to dating glass bottles. In some instances, their interpretation is also dependent on some knowledge of the type, size and source of the glassware, notably common ‘black’ bottles or more luxury products from Continental, British or American sources.

This Section serves to emphasise the need for a technical assessment of the forms of push-up and pontil marks of a large number of known dated Australian artefacts.

4.3 **Holding Tools**

The introduction of holding tools for the manufacture of glassware finally eliminated the use of pontils and their unsightly pontil marks - the exception being hand-made tableware where the pontil mark was usually ground away. Various holders designed for specific shapes of glassware exist (Fig. 30). The following are typical:

4.3.1 **The Sabot** is a modified pontil tipped by a four-fingered holding device and was in use in France in 1830/1840 (Ref. 44) 1840 (Ref. 44). The cross pieces in the base of the tool and the pushing of the article into the fingers can leave surface markings (usually quite light) if the base of the bottle is placed into the holder before the glass is sufficiently cold.
The effects of using the tool are indicated in the heavily marked square gin bottle in Figure 31. In this example the extent of the distortion and the deep central impression in the base are so unusual that in all probability the tool used was too small for the bottle.

4.3.2 The snap-case or gadget, a spring-operated holding device, appears to have been first used by Pellatt in England c. 1830-50. In 1868 Bontemps describes a similar device (Ref. 44).

4.3.3 Disappearance of pontil marks. The adoption of holders and the disappearance of pontil marks appears to extend from the 1830s to the 1870s with the period of change probably depending on the type of glassware or bottle.

J.K. Baldwin provides an extensive illustrated summary of patent and proprietary medicines in which details concerning bottles used for packing are placed alongside the dated advertisements of the product. The information provided by Baldwin has been collated to show that a change to a non-pontilled base for this group of bottles takes place effectively between c. 1850-60. Statistically, there is less than a one in ten chance of an un-pontilled medical bottle occurring before c. 1850 and also a similar probability that a pontilled bottle will be made after c. 1860 (Fig. 32).
Figure 31. Dark-green square gin bottle and its base, showing distortion of the lower sides and deep markings on the base. (Reproduced by the kind permission of the Trustees of the Museum of Applied Arts and Sciences. MAAS A6893-7.)

Figure 32. Graph showing change in pontil marking of American medical bottles between 1820 - 1900. Total sample size 300. (Based on information in Baldwin, Ref. 42.)
For common wine bottles, it is generally agreed that holders replaced pontils for the finishing process between c. 1840-70 and largely superseded them by the 1870s (Ref. 31).

Clearly, holders would have to fit the base of a bottle precisely so that the neck could be rotated without wobbling on its axis whilst applying the finishing collar of hot glass (Figs 3, 4). Such a precise fit would be possible with moulded bottles such as those formed in three-piece metal moulds. Manufacturers making more expensive products in metal moulds, as distinct from common ‘black’ bottles formed in wooden moulds, would also be more likely to adopt these new techniques.

It is not surprising therefore, that there appears to be direct evidence of these changes occurring as early as c. 1830-40 in well-moulded luxury products such as pale-green food bottles. Several tall, circular, three-piece, moulded, pale-green preserve jars, and a fluted pickle jar, from the 1841 wreck of the James Mathews, have well-formed basal profiles, sometimes with a mamelon, and have no pontil marks (Ref. 92).

Considering that finishing tools were said to be in use in English and Scottish factories in 1828 (Ref. 44), it is probable that holders may have been used in high class colourless and pale-green moulded glass bottles and tableware as early as c. 1830-40 or even earlier.

4.4 Moulds and mould seams

The major departure from traditional methods of blowing and forming was the introduction of different forms of mould. It is important to note the necessity to differentiate between flint and common ‘black’ glass when considering different forms of moulding and mould marks.

No matter how carefully moulds are made, a seam is left in the glassware corresponding with the junction of two separate parts of the mould. This seam takes the form of a slightly raised ridge either on the surface or pressed into the surface of the glass. Even a scratch or lightly scaled mould surface will be accurately mirrored in the surface of the finished glass. Mould or tool marks formed in the early manipulation stages (Fig. 2) may be retained in a blurred form on the surface of the finished glass. Chipped corners of metal moulds, often due to trapped, cold glass, are accurately reflected by small pimples of glass at some point on the glass mould mark - such as just below the reinforcing collar in a three piece moulded bottle. The cyclic heating and cooling of adjacent metal mould parts and non-uniform temperatures along their edges disturbs the alignment and alters the small gap between the mating mould parts. This warping is faithfully reflected as very slightly broader mould seams corresponding with the outer colder mould parts. In modern glass moulds, the effect is offset by hollow-grinding of matching mould parts.
body or collar, or are circumferential marks around the base, heel, shoulder, rim or around the area immediately below the reinforcing collar.

By inspecting and identifying the position and extent of the mould seams in glassware or glass artefacts it may be possible to infer the mould form used (dip, two-piece, three-piece, pressed or machine-made) and thus infer their period of manufacture. It may not be possible to identify the mould material, its use or construction.

4.4.1 Dip moulds. The use of simple internally tapered one-piece dip moulds appears to have commenced in Britain in the early 1700s (Fig. 33). This type of mould is illustrated in a 1750 wood-cut of a French glasshouse. Many early dark-green/amber cylindrical, octagonal and square bottles were made in this manner and tapered down from the shoulder so that the shaped body could be lifted out of the earthen, wooden or metal moulds.

![Figure 33. Examples of one-piece dip moulds and shapes produced from them.](image)

Interesting examples of the use of the dip mould are square ‘case gin’ bottles. Among the earliest square ‘case’ bottles in Australia are four intact examples and several broken pieces from the 1727 wreck of the *Zeewijk* (Ref. 58). Although these bottles have been fairly accurately formed, presumably to fit into the framework of a case, they appear to have been shaped by paddles or squared wooden block tools rather than dip moulds (Fig. 5). Immediately after the Napoleonic wars (which may have restricted the import of these Dutch ‘case’ bottles) *Schedam* gin was imported (S.G. 27.7.1816, p.2) in ‘4 gallon cases’ (S.G. 14.12.1816, p.2) and in “cases containing 15 half-gallon bottles” (S.G. 14.12.1816, p.2; S.G. 6.2.1823, p.4). These square bottles became quite a selling feature and were specifically mentioned in the manifest of the ship, the *Governor Phillip* (S.G. 19.6.1823, p.4).
There are also many examples of common dip moulded wine bottles up to c. 1870. Figure 34 illustrates a sealed example made for the Kirklands vineyard, probably around 1850.

Between c. 1750-1820 specially shaped dip moulds were introduced as a means of obtaining fluting effects in hand-blown crystal glassware (Fig. 33, Ref. 67). These moulds were used to obtain the characteristic base fluting of Irish decanters (Ref. 79 and Fig. 10). Similar effects were obtained in Spanish (Ref. 81), Scottish (Ref. 51) and other British factories at that time (Ref. 78).

Bottles formed in solid dip moulds are characterised by:

* An absence of mould seams in the body and base
* Unseamed, free-blown (often asymmetrical) shoulders
* Faint circular mark or slight bulge and change in glass thickness corresponding with the position of the top of the dip mould (depending on the degree to which the craftsman blows up the bottle against the side of the mould) (Refs. 31, 68).

Figure 34. Dip moulded sealed wine bottle made for James Busby's Kirkton Estate. (From: J. Vader & B. Murray, Antique Bottle Collecting in Australia, Ure Smith 1978, p. 58.)

Note the faint horizontal blow-over mould mark at the arrow near the shoulder and the absence of other mould seams.
This faint circular mark is usually on the upper body or right on the shoulder and is not as obvious as a normal mould seam (Fig. 34). It may only amount to a slight change in reflectivity where the hot glass has touched the mould compared with the highly reflective fire-finished, free-blown shoulders and neck. Careful inspection with a light behind the piece of cleaned glass, or even inside the bottle, may also be needed to detect any change in glass thickness at a line corresponding with the top of the dip mould.

Such ‘blow-over’ dip mould marks on the shoulder of a common bottle usually imply that it has been made, at the outside, before c. 1860-70. For better class flint phials, food and chemist bottles, this limitation may well prove to be before c. 1840-50. In high class tableware, the technique is usually associated with the production of base fluting between c. 1760-1860. Like most simple hand processes, the technique still remains in use.

4.4.2 Two-piece moulds. The use of the two-piece mould is one of the most obvious ways of forming glassware. In fact, in a modified form, with the addition of base-plates, it is the modern method of final moulding of machine-made bottles.

Simple two-piece moulds can be bottom or side-hinged and full or shoulder-length (Figs 35, 36). They give rise to vertical mould seams up to a blow-over mark in the shoulder (Fig. 37a) or right into the neck (Fig. 37b) (Refs 31, 68). They have the disadvantage of forming a seam diametrically across the base of the bottle, the unevenness of which may cause instability.

Figure 35. Two-piece bottom-hinged moulds. (A. Pellatt, Curiosities of Glass-making 1849, p. 103.)
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These seams are easy to see in modern machine-made bottles where high pressure air is used for blowing. However, in hand-blown glassware, the slightly raised ridge of glass corresponding with the gap between the mating faces of the mould parts or the slight change in glass thickness or level where two parts do not fit perfectly, may be difficult to identify. A spotlight behind the glass may be needed to pick up the location of the mark particularly when the glass has not been fully blown up against the mould halves.

Figure 36. Two-piece side-hinged mould from an 1817 illustration of glass-maker’s tools. (Redrawn from E. Fletcher, Antique Bottles in Colour, Fig. 10, p. 27.)

In Britain, the use of two-piece moulds appears to have been confined to the flint and phial glassworks and initially not to have been applied to common bottles.

In tableware manufacture, ‘open and shut’ moulds have been used in Britain and Europe for several centuries (Ref. 17). Moulded lion mask stems from 1650-1750 were made in this manner (Refs 23, 38). The silesian wine glass stems of the first half of the eighteenth century were also made in this way (Refs 11, 15). Completely moulded small phials and tumblers were being made in two-piece moulds by 1750 and possibly earlier (Refs 26, 29).

Early examples of two-piece moulded glassware appear to be mainly tableware, early imported carbonated drink bottles after c. 1835, food and apothecaries’ bottles and phials as in Figure 18b. There are several such artefacts from wrecks in West Australia - the 1841 James Mathews and the 1852 Eglinton. All are pale-green, not ‘black’ glass, and are well-moulded or embossed, implying that the majority was probably made in metal moulds.

The use of split wooden moulds for plain phials, for which no embossed lettering was needed, may have been cheaper than heavily hinged metal moulds. Careful inspection of the drawing of a two-piece mould which formed part of a set of glass manufacturing tools in 1817, indicates that the artist appears to have sketched a wooden mould with locating dowel pins and light hinges (Fig. 36, Ref. 52).

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Wooden moulds continued to be used extensively for common bottles at least to c. 1860 as indicated in E. Breffit's 1857 patent on the impregnation of wooden moulds with alum and sodium silicate solutions. These wooden moulds, which are dipped in water between successive use, carbonise on the inside and give quite a smooth moulded glass surface. The glass is readily moved or spun backwards and forwards during blowing which reduces or even eliminates mould marks. The obvious advantages of simple wooden dip moulds for common bottles would be low initial cost, ease of shaping, repair and replacement - all very important considerations for small companies with inadequate engineering facilities making a relatively cheap product.

![Diagram of bottles showing seams](image)

Figure 37. Two-piece moulded bottles showing seams.

These considerations of cost and convenience, as well as the separation of the flint and common bottle trades by the excise laws and regulations, may well explain why more sophisticated methods of moulding were not widely adopted for common bottles until the introduction of chilled cast iron moulds allowed cheaper high quality engraving in 1866 (Refs 48, 66).

The characteristics of simple two-piece moulded glassware are:

* Two diametrically opposite vertical seams in the body
* A diagonal seam across the centre of the base (Fig. 37).
In addition, an important feature is that this two-piece moulded glassware can have embossed designs and lettering in the body. The mould halves move apart after blowing is completed, allowing the use of engraved mould surfaces. In contrast, dip moulds have to be smoothly tapered to enable the shape to be withdrawn.

Figure 38. Bottom-plate construction and typical mould seams obtained in two-piece moulds.
Simple two-piece moulding appears to be confined to shaped food and carbonated drink bottles, apothecaries' bottles and phials in flint or coloured glass from c. 1750 on, and was only fully replaced for these purposes as semi and fully automatic machines were adopted in c. 1890-1930. Effectively, it does not appear to have been generally used for common 'black' bottles prior to c. 1890.

The more complex forms of two-piece moulds have post-bottomed (Fig. 38a) and cup-bottomed (Fig. 38c) base-plates. These plates form an additional circular seam in the base of the bottle (Fig. 38a) or just above the base of the bottle wall (Fig. 38c). The typical full diagonal seam across the base of simple two-piece moulding is eliminated. The main advantage of using the post-bottomed mould is the extension of the base-plate, like a post, into the two halves of the mould that forms the body, which thus ensures correct closing of the mould.

Where the base-plate fits precisely into the cylindrical body of the mould (Fig. 38b), as in the Ricketts design applied to a three-piece mould (Fig. 25), the seam is right on the heel of the bottle. The glass in this mould seam is rapidly chilled, giving rise to micro-cracks, so that these bottles often show extensive chipping of the sharply angled base corner.

These complex methods of two-piece moulding are identified by the circular base or lower body seams in conjunction with two opposing vertical mould marks on the body, frequently extending right up into the neck. The body and base can be embossed with designs or lettering.

Figure 39.
Aire & Calder patent bottle from the 1852 wreck of the Eglinton with special lip and cap seat bore, horizontal mould seam at the body with shoulder junction and opposing vertical seams on the body. Aire & Calder Bottle Works owned by E. Brofit & Co., S. Yorkshire, Ref. 20. (WA Maritime Museum EG 888, EG 908.)
These moulds appear to have been developed first in the flint glass trade about 1790-1820, probably for pictorial and historical flasks in America and for the crystal glass trade in Britain. The bottom-plate construction by Ricketts in 1821 appears to be the first direct reference (Refs 17, 52). Despite these earlier developments, examples in early artefacts in Australia are likely to occur in high quality bottles after c. 1840 - such as the pale-blue Aire and Calder patent bottle with straight sides, opposing vertical body seams and embossed basal surface from the 1852 *Eglinton* wreck (Fig. 39).

Owing to the general adoption of three-piece moulding for common 'black' wine bottles in the latter half of the nineteenth century, the identification of two-piece moulding with base-plates for common bottles will usually imply that they were machine-made by semi or fully automatic methods after c. 1900-20.

### 4.4.3 Three-piece moulds.

Several sealed and dated bottles from the early period of the nineteenth century have been found with three-piece mould seams. However, it is always possible that the seals on the bottles relate to the vintage rather than the date of the bottle manufacture (Ref. 52). Although some early experimentation with three-piece moulding may have taken place, detailed research by Olive Jones (Ref. 17) concludes claims (Refs 67, 80) that Charles Chubsee of Stourbridge perfected this system in 1802 appear to be difficult to substantiate. Chubsee was '... a good mould maker, principally for diamond mould.' (Ref. 17).

Nevertheless, the three-piece construction, which was essentially a dip mould for the body with two hinged shoulder moulds, was not claimed by Henry Ricketts as part of his major breakthrough in the manufacture of common bottles in his British Patent No. 4623 of 1821. This patent provided a mechanism for the opening and closing of the shoulder moulds and for the insertion and retraction by a 'knocker-up' of a 'punty' or 'pricker-up' which formed the push-up in the base of the bottle. The ring-plate, which fitted around this push-up, was engraved with the maker's name in reverse and was also adjustable in thickness making it possible to readily vary the height and capacity of the bottle. Ricketts states:

>'By this sole invention, the circumference and diameter of the bottles are formed nearly cylindrical, and their height determined so as to contain given quantities or proportions of a wine or beer gallon measure, with a great degree of regularity and conformity with each other ... ' (British Patent No. 4623, 1821).

All the major features required to make the bottle a precisely sized package were included in this patent, except the important control of glass weight and thickness, even though the change over from free-blowing, dip moulds and the use of wooden moulds evidently took another forty years to complete for common 'black' glass bottles (Refs 17, 52).
Figure 40. Henry Ricketts' improved mould and moulding mechanism. (British Patent No.4623 of 1821.)

Figure 41. Simple three-piece mould and corresponding mould marks on the bottle.

Many early three-piece moulds are thought to have been of a much simpler form with the shoulder moulds fitted with long handles (Fig. 41). The base of the solid tapered body mould was evidently sometimes fitted with some form of push-up vent.
Two examples of a foot operated form were illustrated by Apsley Pellatt in 1849 (Ref. 70). A development of this type often used in the latter half of the nineteenth century is shown in Figure 42 (Refs 52, 67).

![Foot press](image)

Figure 42. Foot-operated three-piece bottle mould. (Modified from: R. Morgan, Sealed Bottles, p. 20.)

The characteristic features for all these different types of three-piece moulding equipment are the same - three distinct and readily identifiable mould marks on the bottle - one encircling the widest part of the shoulder where it joins the body, the other two vertical and on diametrically opposite sides of the shoulder and neck (Fig. 41).

An important additional feature is that embossed designs or lettering are not possible on the body and base, only on the shoulders. The lower solid mould is tapered, as in a dip mould, so that the moulded body can be lifted straight out.

In many instances, these three-part moulded bottles also have a dimple like basal shape, often called a mamelon, in the centre of the moulded push-up and corresponding with some form of push-up vent.

Such a vent allows any air entrapped between the hot glass and the mould base to escape and so ensures full glass contact and moulding in the otherwise solid mould. The appearance of this mamelon may be similar to the shape probably formed by a capped push-up tool (Fig. 26) in an otherwise unmoulded bottle.

The dating of two and three-piece moulded glassware differs considerably for clear flint and common ‘black’ glass.

Three-piece moulding is the commonest form of moulding for common ‘black’ wine bottles which form the bulk of glass artefacts found on Australian sites. However, effectively it was not used for high quality
shaped flint glass bottles, except for the simplest unembossed designs. Examples may well be found over a period as wide as c. 1820-c. 1920.

The change over to improved methods differed considerably for flint and ‘black’ glass. For example, all the clear flint glass food bottles in the wrecks of the 1841 James Mathews and the 1852 Eglinton appear to have been two-piece moulded, except for plain round unembossed bottles where three-piece moulding can be used. In contrast, over four-fifths of the ‘black’ glass wine/beer bottles on these wrecks were still traditionally made or formed in dip moulds and the remainder three-piece moulded.

After c. 1900 even common bottles were made using complex two-piece moulds with base-plates. Nearly half of all American bottles were moulded on the Owens suction machine by 1917 (Ref. 16) and corresponding changes in Britain, Europe (Refs 33, 66) and finally Australia (Refs 33, 34) took place by c. 1920-25.

Black glass artefacts are likely to occur in a three-piece moulded form from c. 1860-c. 1900. In contrast, flint glass artefacts will generally be of two-piece and complex two-piece form from c. 1830 onwards.

The interpretation of one of the main types of glass artefacts, the broken base, is thus entirely different for those composed of common ‘black’ glass and flint glass. Although the outside possibility has always to be borne in mind that circular mould seams in the base or heel can be found from c. 1820 onwards if Ricketts’ methods were used, normally their appearance would imply that a common ‘black’ or amber bottle was manufactured after c. 1890-1910. On the other hand, diagonal or circular mould seams in pale-green or colourless bases are common, at least from c. 1830.

4.4.4 **Turn and paste moulding** is the forming of a glass article by continuously rotating the blow-pipe and turning of the hot glass shape while it remains in contact with a previously wetted circular dip, two-piece or three-piece mould. This method produces **seam-free** glassware (Fig. 43).

This method is sometimes stated to be a development taking place from c. 1880 onwards (Refs 52, 68), but the increased use of turn-moulding for bottles at the time was only an extension of the traditional practice of hand-blowing and turning in wetted moulds (Refs 48, 65). This method facilitates turning the glass on the blow-pipe by providing a layer of steam between the hot glass and the mould. Evidence of mould seams is obliterated and a high surface polish, very similar to that obtained during free-blowing, is produced.
Although highly polished, there is always some evidence of turn. There may be light rotational markings on the smooth surface such as those found on a domestic light bulb viewed in reflected light (Fig. 6). In bottles, it is usually possible to identify such circular markings and link these with the absence of mould seams on the body and shoulder.

Lamp chimneys, apothecaries’ show globes and some forms of tableware and lamp bulbs, were, and still are, made by these techniques. Prior to c. 1880, bottles were not usually moulded in this manner. However, over one-hundred turn-moulded wine bottles were found on the 1852 wreck of the Eglinton - artefacts similar to EG 755, 892, and 893a in the Eglinton Artefact Catalogue of the West Australian Maritime Museum.

The ideal bottle for the application of a label was one without mould seams. Thus, the need for the hand-labeller to turn the bottle to the smooth surface between the seams before labelling was eliminated. The three-piece moulded bottle was suitable for this purpose as the body is free of mould seams (Fig. 41). However, following the introduction of labelling machines in the 1870s, these bottles had the disadvantage that the body was slightly tapered to allow the bottle to be removed from the mould.

In April 1879, G. Evinson invented a method of modifying metal moulds (Ref. 52). He achieved this by ‘... lining moulds with a mixture of plumbago [graphite] and oil or tallow by which combustion produces gas and forms a cushion enabling the bottle to be easily rotated in the mould.’ In a later development, these paste-moulds were made by painting the
inside surface of the cast iron shape with thickened linseed oil, spraying with a medium-sized cork powder, and pre-heating at about 400°C and burning-off (carbonising) before use.

Although three-piece moulding continued to be popular, there was a rapid expansion in pastes-moulding of bottles between c. 1870-c. 1920, after which both methods were superseded by two-piece moulding of machine-made bottles. Where there is other supporting evidence, it is usually a fair assessment to place turn-moulded bottles in this period, as long as the earlier use of wooden moulds for bottles and other forms of glassware, and the continued use of paste-moulds for the latter are fully appreciated.

4.4.5 **Engraved moulds** are widely used to form embossed designs and lettering on glassware. This embossing can provide evidence for dating in various ways:

* By the limitations in embossing of the different parts of the surface in each form of moulding, as previously discussed for dip, two and three-piece methods.
* From the known period of the introduction of embossing, particularly as this applies to imported British and locally manufactured clear flint and common ‘black’ bottles.
* Directly from the information provided by embossed names, trade marks, designs and dates.

It is useful to have a clear understanding of the limitations of each method of forming.

Seals can be applied to glassware made by any method of forming, including free-blown glass. They are impressed by a hand-held engraved plate on a blob of molten glass on the surface of the bottle. Examples are known in Europe from c. 1650 onwards. Initially, seals were placed on the side wall between the shoulder and the base. More modern examples, usually in two and three-piece moulded bottles between c. 1860 and c. 1910, often have seals on their shoulders. E. Fletcher of the British Bottle Collectors Club provides a useful summary of about six-hundred seal designs found on wine bottles, ‘case’ gins, schnapps and bitters bottles, together with an index of firms’ names (Ref. 53).

Figure 44 illustrates the relative direction of movement of the grooved metal and the glass after moulding places a major restriction on the use of engraved moulds. The engraved groove also has to be tapered outwards to ensure that the moulded glass does not touch the metal as the two move apart after moulding is complete.

As a result of this limitation Figure 44 shows that only certain surfaces can be embossed for different methods of moulding.
When inspecting an embossed piece of broken glass, it is thus also essential to carefully identify the **shape** of the embossed surface. If concave, the embossing is on the push-up or base. If flat or convex, with one direction of curvature only, the embossing is on the body. If convex, with two directions of curvature, the artefact is from the shoulder of the glassware. Using Figure 45, it is then often possible to identify the moulding method - dip, two-piece or three-piece and thus provide a guide to age.

Engraved moulds were in use as early as the first century A.D. and possibly earlier (Ref. 31). They have been used for tableware in Europe and Britain for several centuries (Refs 11, 15, 17, 23, 29). An extract from Felix Farley’s Bristol Journal of August 15th 1752 confirms the early use of metal moulds for bottles:

‘*On Thursday James Watkins was committed (and Afterwards acquitted) to Newgate for stealing one brass bottle mould value 18s. [shillings], the property of Mr. James Warren, from the glasshouse in St Thomas St, Bristol.*’
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Figure 45. Surfaces which can (and cannot) be embossed using various moulding methods.

The introduction of embossed bottles appears to have been largely confined at first to two-piece apothecaries' bottles (Refs. 10, 29). No doubt this occurred because the larger, cheaper common bottles were initially traditionally made, then dip, or three-piece moulded in which embossed designs were not possible on the body (Fig. 45). The finding of a violin-shaped Turlington's 'Balsam of Life' bottle (Fig. 46 a) embossed with a date in 1750, in an early Williamsburg (U.S.A.) well, supports this early adoption of metal moulds and engraving for apothecaries' bottles (Ref. 26).

Although mould engraving was known in Bristol and other areas by c. 1750 and was clearly established in the Stourbridge crystal tableware trade by c. 1800 (Ref. 17), much of our detailed knowledge comes from Margaret Ellison's investigation of the account books of the engravers Beilby and Bewick (Ref. 10). These books relate to the cutting of brass and iron moulds among the glassmakers of the north-east coast of Britain between 1767 and 1848. Most of this engraving was for Shortridge & Co., South Shields and for the Northumberland Glass Co. The bulk of the bottles produced in the north-east at that time were shipped to the London bottlers and distributed via colliers from Newcastle-upon-Tyne. The records confirm that this engraving was mainly for the apothecaries'
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luxury clear glass trade. Moulds known to have been engraved in Britain between 1786 and 1829 are listed below, alongside the known dates between 1817 and 1847 of imports of the corresponding products to Australia.

1786-1805  Daffy’s Elixir imported to Australia (S.G. 13.3.1823, supp. p. 1). Empty bottles were resold (S.H. 2.2.1842, p.3).

1816       Turlington’s Balsam of Life (S.G. 11.9.1819, p. 4)

1815,1816  Dalby’s carminative (S.G. 19.7.1817, p. 4)

1811       Macassar Oil, A. Rowlands & Sons, Hatton Gardens (S.G. 31.7.1830, 15.5.1834, p.1.)

1817       James Atkinson, London, probably for their Bear grease (S.G. 7.4.1847).

1820-29    Price Gosnell, Perfumers to His Majesty (Australian 4.8.1825, p.1).

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**Figure 46.** Examples of early pontilled apothecaries’ bottles from engraved moulds. (Ref. 13)

a. Turlington’s Balsam of Life. Approx. 76 mm high (3 inches), 45 mm (1 3/4 inches) wide and 13 mm (1/2 inch) bore.

b. Fluted rectangular Daffy’s Elixir. 108 mm (41/4 inches) high, 67 mm (2 5/8 inches) wide, 38 mm (1 1/2 inches) deep, 13 mm (1/2 inch) bore.

c. Dalby’s gel. Sydney 114 mm (4 1/2 inches) high, 51 mm (2 inches) base diameter, 13 mm (1/2 inch) bore.

d. f. Three apothecaries’ bottles. All pontilled. Sydney. Probably c. 1830-50. Approx. 76-127 mm (3-5 inches) high, 38-45 mm (1 1/2-1 3/4 inches) maximum diameter, 13 mm (1/2 inch) bore.
Early pontilled bottles from engraved two-piece moulds of this general type have been found recently in Sydney (Figs 46 c-f). As usual, such bottles, below six fluid ounces (170.4mL) capacity, are in clear glass to conform to British excise regulations of the time.

Examples of embossed bottles used in New South Wales from c. 1835 onwards are illustrated in Figure 47. Prior to c. 1850, plain shaped and fluted food bottles (Figs 18b,c) and simply lettered ovate soda-water bottles (Fig. 47a), such as those of J. Neilsen (S.G. 29.7.1837, p.3) and J.C. Russel (S.H. 3.1.1840, p.1), have all been found in Sydney.

Figure 47. Examples of embossed bottles from engraved moulds used after c. 1835.

d. Batty & Co., London. Capers. (S.H. 5.8.1840, p.3) 160 mm (6 1/4 inches) high. 38 mm (1 1/2 inches) square. c. 1850-70.
e. A.F. Moore, Newcastle (1873-1950). Base embossed BGW, Botany Glass Works (1890-1907). Dark-green. 260 mm (10 1/4 inches) high. 80 mm (3 1/4 inches) diameter.
4.4.6 Engraved plate-moulds. A modification applicable to many forms of metal mould, but usually applied to the body of two-piece type moulds, is an arrangement for the insertion of interchangeable, rectangular, circular, or even oval, engraved parts into the wall of the mould (Fig. 48). This principle was used and patented by Apsley Pellatt for tableware from 1820-50 for the moulding of intricate designs such as regimental badges. The designs were moulded from plaster casts covered with diatomaceous earth/brick dust and inserted, after preheating, into the mould wall.

![Diagram of mould with holder for insert and plaster cast insert](image_url)

Figure 48. Interchangeable inserts into a mould wall. (Apsley Pellatt, *Curiosities of Glass-making*, p. 118.)

These 'plate-moulds' were more widely adopted by manufacturers after a patent for them was taken out by David Barker in the U.S.A. on 3 June 1879. The same basic mould could be used with individual engraved plates for different distributors, suppliers' names or trade marks on, for example, medical flats (Ref. 42), soft drink and milk bottles (Fig. 49).

The identifying feature of these moulds is an additional rectangular, circular or oval mould seam surrounding the name and address or trade mark. As the plate and mould are usually a very close fit and the join is often incorporated in the engraved design, this seam is not always easy to identify.

Extant examples of ovate 'Hamilton' type bottles from c. 1840-70 were evidently made from moulds with similar engraved metal inserts (Fig. 49).
4.4.7 **Sandblasting.** Although not a moulding procedure, a further method of showing the ownership of bottles was by sandblasted designs and lettering. The first use of sharp angular grained sand impelled by a jet of air, water or steam, was by B.C. Tilgham in two British Patents, Nos. 2147 and 2900 in 1870. This technique was so successful that the patents were made worldwide and the process was demonstrated in an exhibition in Vienna in 1873.

This simple sandblast process was soon applied as a cheap way to label bottles using a cut-out curved metal template covering the body of the glassware to be sandblasted. The method had the advantage that it could be cheaply applied by the bottler before use. It was used c. 1885-1910 to label beer bottles, particularly in Victoria.

4.4.8 **Dating by embossed marks and mould seams.** Embossed glass artefacts, from engraved moulds and engraved plate-moulds, can be a very useful guide to age.

Highly decorated figured ‘historical’ flasks were made in the U.S.A. as early as c. 1790-1830 (Refs 63, 68). However, apart from some forms of moulded tableware (Figs 10, 11, 13) and luxury bottled products (Fig. 46) such as apothecaries’ and early soft drink bottles, the full impact of
the engraving of metal moulds seems to have occurred in Australia with the appearance of beautiful designs of oil and pickle bottles during the c. 1850-70 gold rush. Many of these designs were registered under the 1842 patent regulations. Figured designs in bottles became more common in Britain and Australia after the introduction of the easily engraved and cheaper chilled cast iron moulds in 1866 (Fig. 47. Refs 48, 66).

As appears in the case of two-piece moulding (at least up to c. 1870-90) the bulk of embossed glass from engraved moulds will usually be found in clear and coloured glass as distinct from common ‘black’ glass.

Apart from early soft drink bottles and medical flats, most examples of the use of plate-moulds will be from c. 1870-1960. Since 1960, there has been a gradual reduction in embossing, as the use of high speed filling and labelling machines and standardised containers has increased.

The difficulties of identification and dating early Australian glass artefacts from observations of mould seams, or embossed names and trade marks, can be highlighted in two ways.

A simple calculation of relative surface areas will show that if a bottle is broken up into 20 mm x 20 mm square pieces, the frequency with which a piece would have a mould seam, or other identifiable mark, would be low:

- **Traditionally made bottle:** 1 in 50 and confined to the pontil mark on the base.
- **Dip moulded bottle:** 1 in 25 from the circular shoulder blow-over mark.
- **3-piece moulded bottle:** 1 in 12 from the circular and two vertical shoulder seams.
- **2-piece moulded bottle:** 1 in 6 from the circular base and vertical body and shoulder seams.

**Table 4.** Probable frequency of identifiable marks on pieces of early Australian glass.

These mean frequencies would be increased for artefacts of larger size and decreased if less than 400 sq.mm. in area. Although embossed names and trade marks of suppliers, distributors and glass manufacturers often provide the most valuable dating information, similar difficulties relating to frequency of occurrence exist at present. Only about forty of seven-hundred and seventy trade names cited in the Sydney papers prior to 1850 appear at present to be associated in any way with identifiable glassware. The true position for broken glass artefacts is even worse. Only a small part of each bottle, or other glassware, is usually sealed or embossed and can provide markings. Also, early consignments of common ‘black’ bottles were often up to several hundred times the quantity of embossed luxury products. Thus, potentially datable features may only be found once in several thousand pieces. Although this difficulty may be overcome by directing attention to clear and colourless
artefacts, they only form a minor proportion even though they constitute about one-third of the names advertised at that time.

Apart from this practical difficulty of identification, it is essential to have the necessary historical background to be of value in dating. Three tables have been compiled to illustrate the scope of the information needed:

APPENDIX 1. This is a survey of one type of bottle: carbonated beverages, now referred to as soft drinks, throughout Australia. The appendix consists of a tabulated reference list summarising shapes, forms of closure and embossed trade marks. It includes approximately twelve-hundred bottles and covers the period c. 1830-1930. (Refs 30, 40, 60) The trade marks or names are usually on the body or shoulder of the bottle.

APPENDIX 2. This is an indicative table summarising some sixty useful glass manufacturers trade marks appearing usually on the base of Australian glassware and bottles from c. 1860 onwards. The Appendix also includes tabulated details of the British registration marks used between 1842 and 1883 and the registration numbers used from 1876 to 1920. These marks are occasionally found on the body or base of tableware or bottles.

APPENDIX 3. This is a referenced table summarising approximately 1,300 trade names associated with glass imports, which appeared in the Sydney Gazette or Sydney Morning Herald prior to 1900.

Australian Glass by Marjorie Graham (Ref. 55) and the Crown Corning collection of glassware, glassmaking equipment and their mail order catalogues (c. 1930-60) at the Museum of Applied Arts and Sciences are valuable sources particularly for Australian tableware (Ref. 37).

The complexity of the suppliers' and distributors' trade marks, even for one type of bottle given in Appendix 1, the sparseness of the published information on Australian glass manufacturers in Appendix 2, and the small proportion of trade names associated with glassware in Appendix 3, highlights the urgent need for much further detailed research.

5.0 BOTTLE FINISHING AND FINISHES

5.1 Purpose

The main purpose of attaching the partially moulded glass shape to the pontil rod (Figs 3, 21, 22) or placing it in a holding (or cradling) device (Fig. 30), is to enable the craftsman to reheat and shape the part of the glass where it has been detached (cracked-off) from the blow-pipe (Fig. 21 and m). In the case of a bottle, this is the sharp, fractured end or lip. As it is the last part to be shaped in a
hand-produced bottle, it is traditionally referred to as the finish even though in modern machine production it is now the first part to be moulded from the hot glass.

The finish, and associated method of sealing, are important features. Even early designs were for specific functions:

* The flared lip - used where pouring was important, such as in a carafe or phial.

* The holding collar (or string-rim) with a varying amount of added glass reinforcing the lip, used where it is essential to wire down the cork and prevent leakage.

* The heavily reinforced rounded finishes, often referred to by collectors as 'blob-tops', for soda and carbonated mineral waters where the cork and finish are subject to considerable pressure.

The different forms of finish have been summarised below. For ease of reference and to assess their period of application in Australia, they have been grouped chronologically, and/or by forming method or use.

### 5.2 Early forms of finish

#### 5.2.1 Cracked-off finish

This type may be found up to 1920. A sharp lip remains when the glass is cracked off with a wetted stick or cold iron. Although this may be an indication of an early bottle, supporting evidence is usually needed. Many cheap inks and sauce bottles were left in this dangerous unfinished state even up to 1920 to avoid the additional cost of a 'finisher'. The sharp edges may be rounded by fire-finishing – that is, by an additional reheating and glazing at the mouth of the furnace or 'glory-hole'.

Figure 50. Cracked-off finish.  
Figure 51. Burst-top finish.

#### 5.2.2 Burst-top finish or lip

This form may be found up to 1920. It is a variant of the cracked-off finish and is formed when a bubble is blown in the neck above the top of the mould. The shape is then readily tapped off with the shattered glass leaving a thinner and even more dangerous edge.
This method is still used extensively for paste-moulded lamp-ware prior to cutting, grinding and other processing within a factory. They are no longer marketed in this form.

5.2.3 **Sheared-lip.** This is a smoother variant of the above. The warm glass is cut with shears (Fig. 2n) and left with, or without, glazing over by fire-finishing.

5.2.4 **Flared-lip.** The sheared-lip is splayed out to form a lip suitable for pouring. This form was used up to c. 1850 for bottles but it is still in use for some types of tableware, notably for carafes. In early bottles, the flared shape was also used at times to anchor the string or wire by which the cork was held in position. This form of finish was favoured in apothecaries’ phials and ‘case’ bottles, presumably to aid pouring. When the lip is splayed over horizontally, it is often referred to as a flanged-lip (Ref. 62).

![Figure 52. Flared-lip finish.](image)

![Figure 53. Pewter-fitted flared-lip. (Artefact 3319, wreck of the *Batavia*. 1629. W.A. Maritime Museum.](image)

5.2.5 **Metal-fitted flared-lip.** Figure 53 shows an early pewter fitting cemented to a flared-lip. This form of fitting was retained well into the present century for decorative items such as ink wells.

5.2.6 **Ground glass stoppers** for apothecaries’ display and storage bottles, and for scent and some sauce bottles were used overseas from c. 1799-50 and in Australia from the earliest period of occupation. Narrow stoppers were used for liquids, wider ones for specimen jars and powders.

The common glass stopper has three parts - the lower tapered shank, ground-in to give a good fit, the neck (if any), the upper thumb piece or grip, called a ‘finial’ and usually approximately 190 x 32 mm (1¼ x ¾
inches) in size. The base of the plug may show a pontil mark, if this has not been ground off.

![Diagram of bottle parts](image)

Figure 54. Narrow and wide-mouth ground-in stoppers and pressed stopper with mould marks.

Moulded stoppers made in two-piece moulds were introduced in Britain about 1850 by York City Glass Co. Unless ground off, they have a diagonal mould mark. These ground-in stoppers are still in use, for example, for storing acids.

5.3 Traditionally formed collars.

The need to modify the sharp, cracked-off end was soon recognised (Fig. 50). Apart from being dangerous, cracking caused by pressure of the cork or other fitting, had to be prevented. While the whole shape was supported by a pontil, additional hot glass was applied to the cracked-off neck from a separate steadied iron and formed with traditional tools (Figs 3, 4). Consequent changes in appearance, due to the addition of a collar or collars, provide a major guide to dating, particularly of common ‘black’ bottles over an extended period from c. 1600 up to c. 1900.

Much of our knowledge of these changes rests upon the detailed assessment of Colonial wine bottles in Virginia, U.S.A. by I. Noel Hume summarised in Figure 20 (Ref. 27) and the work of Olive Jones (Ref. 61). Jones has statistically analysed the dimensions of 211 cylindrical English wine and beer bottles of known dates from Canadian sites between 1735 and 1850.

While further investigations of Australian artefacts may give rise to modifications, both of these works provide a basis for dating wine and beer type bottles to about twenty years but are not relevant to clear and coloured bottles.
5.3.1 **Single collars.** These were often referred to as string-rims and were first used up to c. 1700-20 solely for wiring on the cork. The position of the narrow collar tends to be further from the cracked-off lip in earlier bottles (c. 1600-60) (Figs 20, 55) than in later bottles – such as in the very large Dutch artefacts from the wreck of the *Zeewijk* in 1727.

![Figure 55. Single anchoring collar up to c. 1700-20.](image)

![Figure 56. Broader and higher single collars c. 1710-c. 1790.](image)

There appears to have been some practical recognition of the need to reinforce and fire-polish (Ref. 61) the sharp lip in the period c. 1700-20 – c. 1780-1800 to prevent leaking and cracking by cork pressures as the single collar becomes broader and nearer the lip and may even extend over the cracked-off end (Fig. 56).

![Figure 57. Single collar as found in high quality, wide-mouth food containers c. 1750-c. 1830.](image)

Particularly for higher quality clear and coloured bottles, the additional glass was often tooled to protect the cracked-off end while still retaining a single collar (Fig. 57). This is noticeable in wider mouth food bottles, soda water bottles and apothecaries’ phials. It is possible that this practice commenced earlier in high quality bottles as a high standard of finish was common practice for wine glasses and tumblers between 1700-50.
5.3.2 **Double Collars.** In wine bottles, the need to reinforce the lip appears to have been clearly recognised by c. 1790-c. 1820 when the additional glass was tooled to ensure the protection of the cracked-off end and form a double collar (Fig. 58).

From c. 1820-30 on, the depth of the glass reinforcing and protecting the cracked-off lip was gradually increased to a maximum of approximately 25 mm (1 inch) by c. 1860 (Fig. 59). This move possibly commenced with the deep finishes adopted by Ricketts for bottles moulded by his patented equipment in 1821. By this means, the effectiveness of the seal would be improved as it would depend almost entirely on the increased area of contact of the cork with the smooth bore of the relatively thick added reinforcing glass in the finish. It would not be affected by any micro cracks or inner folds in the bore of the original cracked-off lip.

![Figure 58. Double reinforcing and anchoring collars found in wine bottles c. 1790-c. 1820.](image)

![Figure 59. Increased depth of reinforcing collar in wine bottles c. 1820-c. 1860.](image)

The demarcation between the original cracked-off lip and the additional reinforcing glass is an important identifying feature of such hand-formed finishes. (These finishes are often referred to as applied or added finishes or applied lips.) This demarcation line can usually be seen by holding the neck and finish up to the light. Alternatively, the rough join can be identified by rubbing the finger *carefully* inside the mouth of the bottle.

5.4 **Moulding by finishing tool**

Moulding of the finish by a finishing tool (Fig. 60) was practiced in English and Scottish factories by 1828 (Refs 44, 62). These tools were in common use by 1844 (Ref. 62). However, Bontemps states that they were not much used in France, the source of some of our early wines, until c. 1860-70 (Refs 44, 62). Their use continued until machine moulding was introduced and it effectively ceased in Australia by c. 1925.
5.4.1 **Finishing tool.** The tool was usually a hand-held clamp with a central plug. The plug determined the size and shape of the bore. Two jaws of the clamp provided the contour of the external surface of the finish. The bottle, held by a pontil or holder, is continuously rotated on the arms of the glass-maker's chair. The hot soft glass of the previously applied collar is then moulded by the hand-held tool (or clamp) to form a smooth symmetrical external surface and a precisely shaped bore.

![Finishing tool](image)

*Figure 60. Finishing tool.*

5.4.2 **Features of a finish formed by a finishing tool are:**

* **Turn-marks** - essentially horizontal turn-marks on the finish as shown in the James Ross soda bottle (Fig. 8a). Some marks may also be seen just below the collar where the jaws of the tool may remove the mould seam, if any (Fig. 61).

* **A precise squared-off tidy appearance** - although excess glass may be squeezed out past the bottom of the finish and remain as a thin layer on the neck (Figs 61, 62).

* **Smooth lip, mouth and bore** - these can be quite smooth and the join with the original cracked-off neck may only be visible by looking down the bore.

![Spherical or 'Blob-top' finish](image)  ![Double collar formed with a finishing tool](image)

*Figure 61. Spherical or 'Blob-top' finish c. 1840-50 - c. 1940.*  *Figure 62. Double collar formed with a finishing tool.*
5.4.3 **Basic changes caused by finishing tools.** Finishing tools resulted in three basic changes which appear to have taken place in the following general order:

* The formation of a smooth external contour of the whole finish and smoothing of the lip and mouth (see Formed collars, Sections 5.5.1 - 5.5.6).

* The actual shaping of the mouth of the bottle to form a seating for special stoppers (see Shaped mouths, Sections 5.6.1 - 5.6.4).

* Moulding or forming grooves in the neck of pressure bottles for shaped plug or ball internal seals (see Ledge mouths, Sections 5.7.1 - 5.7.3).

These detailed changes, caused by the introduction of finishing tools, require very close inspection of the finish, mouth and neck of the bottle to be of full value in identification and dating.

5.5 Formed collars

The initial improvements in the external appearance of the finishes of some bottles occurred between c. 1830 and c. 1850, particularly in the higher quality food, medical, soda and carbonated drink bottles (Refs 30, 84, 85).

5.5.1 **Single collars.** This improvement may well have coincided with the introduction in Sydney of *'large patent jars'* (S.G. 12.6.1834, p. 3), *'square pickle jars'* (S.G. 22.9.1835, p. 3), and *'flint glass squares'* (S.G. 7.5.1836, p. 3). These jars were used for the then luxury pickles, jams, jellies and bottled fruits imported by companies such as Wyatt, Gunther, Brown, Walkingshaw, Tingham, Jolly, Batty, Powell, Wybrow etc. (Figs 18d, 47d).

Figure 18c of an eight-fluted pickle jar from the 1841 wreck of the *James Mathews* is typical of the well-formed single collar finishes. Various forms and shapes of such single collar finishes were used in bottles up to c. 1900-20 when similar machine-made finishes (with finish-mould seams) appear.

The change to the use of similar single collars in common wine and beer bottles was much later (Fig. 20). The first adoption for this purpose probably coincided with the addition of *'silver foil’ tops in the 1840-45 period (see Section 5.5.5).

5.5.2 **Spherical finish** (commonly known by collectors as a ‘blob-top’). Following the introduction of soda and other carbonated drinks by Schweppes about 1800, the finish on the ovate bottles was usually a flat-sided single collar that extended to the lip (Fig. 56).
Although there are many variations in general appearance for individual soda bottles, De Gruchy’s bottle (Fig. 47a) and that illustrated by Olive Talbot (in Ref. 30) for Ray of Westminster (1833-39), indicate that the need to strengthen the finish of pressure bottles in this way was recognised at the time.

The more general adoption in Australia of the spherical finish (Fig. 61) for this purpose was technically possible after c. 1850/60. It may well have been a direct copy of early round-top stone ginger beer bottles. These were imported and also thrown on the wheel by our early potters such as Jonathon Leak (1822-38), John Moreton (1820-c. 1844), Ned Smith (c. 1834-40) and Enoch Fowler (1837-73).

This spherical form of finish was first used on ovate (Hamilton) bottles (Figs 47a, 49a) and Maugham type bottles (Fig. 47b) up to c. 1905. It continued to be used, rather as a tradition, on dump sodas and other cork-mouth carbonated drink bottles up to c. 1940-50.

5.5.3 **Double collars** (Fig. 62). These were formed using a finishing tool and gradually replaced the corresponding hand-moulded form (Fig. 57). This change appears to have occurred to a large extent between c. 1840-c. 1870.

The finish gradually lengthened up to approximately 25 mm (1 inch). The example in Figure 62 is similar to the finish of a Victoria Brewery, East Melbourne, lager bottle made by Mooney Valley Glassworks between 1896 and 1901. The smoother appearance, horizontal turn-marks and the greater difficulty in identifying the glass join in the finish are all typical of the use of a finishing tool. The main change was that the lower (anchoring) collar became narrower and more rounded and gradually ceased to be used, except for champagne bottles. A deep single collar was often used and is still in use for many spirit and cordial bottles, particularly gin and bitters bottles, which do not require an anchoring collar.

5.5.4 **Perry-Davis finish**, often simply referred to as a **cork-mouth** finish, is the modern machine-made equivalent and developed from the above single and double wine and beer collars from c. 1900 on (Fig. 63).

![Figure 63. Perry-Davis machine-made finish, c. 1900 to date.](image)
5.5.5 **Champagne (and foil seal)** also followed the introduction of the finishing tool.

In 1843 'tinselled', 'sealed' or 'foil-top' ale and beer bottles from Dunbars of London appeared on the Sydney market (S.H. 10.11.1843, p. 3), probably as a result of being able to make a more precisely moulded collar. These bottles were sealed down with lead foil, and crimped around the finish to prevent tampering with the cork and contents. Similarly, sealed food bottles from the *Eglington* in 1852 have been found with both food and lead foil intact (Fig. 18 a). ‘Long’ German wine bottles were also announced at that time, presumably with sloping shoulders. Similarly shaped 310 mm (12⅞ inches) long olive-green bottles with a typical champagne type finish (Fig. 64) also appeared on the *Eglington*.

![Figure 64. 'Champagne' type finish or 'ring seal' - c. 1850 to date.](image)

These well-formed single collar finishes were used in a variety of common bottles up to c. 1900-20. Similar machine-made finishes (with mould scabs) and crimped foil cover are still used for sealing wine bottles today.

5.5.6 **Crown-cork.** This finish eventually proved to be one of the most widely used inventions and is now used extensively for beer and carbonated drink containers.

In 1892, William Painter, the founder of the present Crown Cork and Seal Company, was granted an American patent for the crown-cork. The lip of the reinforcing collar on the neck of the bottle was moulded to very close tolerances so that the outside sealing lip was a quarter circle with the under side relieved (Fig. 65). A cork-lined crimped metal cap, resembling a crown, with a skirt or flange which acted as a lever was forced down under a pressure of about seven-hundred and fifty pounds per square inch. This compressed the cork liner and crimped and locked the skirt of the metal cap under the sealing collar (or 'ring') of the bottle. The approximately sixty-five per cent compression of the cork disc
maintains a good seal in pressure bottles through all normal variations of
temperature to which the bottle is subjected.

The size was standardised from the outset. The neck diameter just below
the finish is 25.4 mm (1 inch). This fact is useful in assessing the overall
size of crown-cork bottles from old photographs and advertisements.

This form of finish could be made with a finishing tool as the shape of
the sealing surface is smooth. The glass and cap have to be moulded very
precisely to obtain good sealing. The present American specifications
call for some glass tolerances below 0.13 mm (five thousandths of an
inch).

Natural cork discs were used in the early crowns with up to one per cent
'leakers' normally occurring because of the holes present in the cork.
Linoleum discs soaked in paraffin were tried by the Bond Corporation in
the U.S.A. in the 1909-15 period. Composition cork discs were
introduced in 1915 and immediately overcame this problem.

For the above reasons the crown-cork was not widely adopted in
hand-produced bottles. The internal screw (Section 5.9.1), lightening
finish (Section 5.6.4) and internal sealing methods (Sections 5.8.1 -
5.8.4) such as the Codd marble bottle were generally preferred prior to
c. 1920. To highlight this point, only two crown seal bottles are cited in
Ken Arnold's History of Bendigo Bottles from 1852-1930. In each
instance, the operation of the companies concerned (Cohn Bros Ltd
1910-24, Jones, Miller & Co. 1910-35) implies that the bottles could have
been manufactured after 1920.

A much wider adoption of the crown seal in the U.S.A. resulted from the
advent of the Owens suction machine after 1904 and its more accurate
moulding of the reinforcing and sealing collar under vacuum.
BOTTLE FINISHING AND FINISHES

However, most of the bottles imported into Australia at that time were from Europe and particularly Britain. Consequently, the wider occurrence of the crown seal in Australia only arose after the adoption of Owens and other machines in Britain in 1915-25 and the corresponding introduction of fully automatic blow-blow machines in Australia between 1920-25.

The eventual wide acceptance of this closure was due to its simplicity of design and concept. In the majority of cases in Australia, the appearance of this type of bottle places the site after c. 1920.

5.6 Shaped mouths

The second modification in finishes which resulted from the use of finishing tools was the shaping of the mouth and upper bore of the bottle, as described in the following Sections 5.6.1 – 5.6.4.

5.6.1 Aire and Calder patent. One of the first examples of this shaping of the mouth was the development by E. Breffit of a finish in which the cap-seat was formed in the mouth and bore to take a small pressed glass stopper (Fig. 39). This ‘patent’ bottle was found in the Eglinton wreck of 1852 (Ref. 84) but efforts to find a patent specification before that date proved fruitless (Ref. 93).

5.6.2 Stopper and cap seat. Similar to the Aire and Calder patent, this seating was formed, for example in sauce bottles (Ref. 20), by shaping the mouth to house a moulded glass stopper and cork insert as in Figure 66. A wide variety of such special seatings was formed by finishing tools and machine methods for many purposes.

5.6.3 Milk bottle finishes. In 1884 in the U.S.A., Dr H.D. Thatcher patented the Thatcher Milk Protector which was a round, embossed bottle with a nickel-plated swing stopper. In 1886 this was replaced by a similar glass closure used in Britain and Australia after c. 1894. The first pressed cardboard disc finish was introduced by Dr. Thatcher in 1889 in the

Figure 66. Stopper and cork insert in a sauce bottle.
U.S.A. However, it was not until the early 1900s that automatic bottle machines produced sufficiently standardised cap seats (Fig. 67) with a ridge inside the neck of a fairly wide-mouth bottle (38 mm, 1\(\frac{1}{2}\) inches).

In its various forms this card closure persisted until the 1940-60 period when the foil covered cap (Fig. 68), fitting into an outer recess just below the 25 mm (1 inch) internal diameter lip, was adopted in Australia.

![Figure 67. Disc top milk bottle c. 1920-30 onwards.](image)

![Figure 68. Foil top milk bottle c. 1950 onwards.](image)

Although a card disc milk bottle from Woodstock Dairy in Bendigo has been claimed to be dated c. 1890, the above facts suggest that this type would be unlikely before 1900, that it would be moulded by a finishing tool and likely to be after c. 1920 in a machine-made form (i.e. with finish-mould seams).

5.6.4 **Swing or Lightening seal.** This closure, invented by Charles de Quillveldt in 1875, had a porcelain stopper anchored to the reinforcing collar by a heavy wire lever. The lever could be pressed down against the bottle neck to lock and seal the cap in place (Fig. 69). The closure initially used a rubber ring placed over the porcelain stopper as a seal. This method, with the advantage of being resealable, became particularly popular when a vulcanised rubber stopper replaced the porcelain type. Its use for beer, ginger beer and carbonated drinks was only phased out in the 1940-60 period.

There are several versions of the Lightening seal:

* The **Electric** stopper – patented in 1889 in which the cap had two holes and was thus permanently attached to the wire lever.

* The **Pittsburgh** stopper which was patented one year before the Lightening with the clamping wire over the stopper.

* The **Hutter** patent of 1893 in which the sealing wire passed through the top of a porcelain stopper with a rubber ring seal.
* H.V. Putnam's modification of the Lightening stopper for wide-mouth fruit jars similar to the type shown in Figure 70.

![Figure 69. Swing stopper c. 1880-c. 1950.](image)

![Figure 70. Swing stopper – bottling jars c. 1880-c. 1950.](image)

The earliest examples of Lightening seals in Australia date from c. 1880 onwards in narrow mouth bottles. Imported American and locally manufactured bottling jars date from c. 1890 onwards. Ross in Sydney and Melbourne Glass Company, followed by Australian Glass Manufacturers, were the first to manufacture bottling jars in Australia.

5.7 Ledge seals.

The third modification, resulting largely from the use of a finishing tool, was the shaping of the neck for shaped plug internal sealing and the formation of grooves in the bore for Codd (marble) and internal screw seals. All these seals were used for pressure-bottles used for carbonated drink.

The following summary places these seals in approximate chronological order of their development and application in Australia.

5.7.1 The Barrett or Hogben long-plug seal depended on the shape of the upper part of the bottle rather than the neck or finish to achieve a seal.

The British Patent No. 2708 to J. Adams and H. Barrett in 1868 and the corresponding Australian Patent No. 242 to E. Hogben and H. Barrett in 1870 (Fig. 71) were the first practical applications of an internally sealed pressure bottle to overcome the difficulties caused by the drying out of corks in cork-mouth carbonated drink bottles.
The long plug, of diameter slightly less than the bore, had a rubber washer fitted into the groove at the lower end. The plug was hollowed out just above the washer allowing it to be flattened down while it was being pushed through the neck. The inverted bottle was filled with a pressure pump. After filling, the heavy hardwood or lignum vitae plug fell into position in the neck of the bottle and remained firmly held there by gas pressure when the bottle was placed upright.

![Figure 71. Barrett or Hogben long-plug or 'stick' seal c. 1870-c. 1900.](image)

The bottles are tall and narrow and gradually tapered towards the neck so as to form a smooth seal with the rubber washer. The only other distinguishing feature is the hardwood internal stopper within the bottle.

Although the introduction of this seal is claimed to be as early as 1840 in one Australian text (Ref. 69), the generally accepted period of use in Australia is c. 1870-c. 1900 as Barrett established his branch here in 1876.

5.7.2 The Hutchinson patent also used a rubber washer (Fig. 72) which was attached to a thick, heavy wire spring which protruded above the lip of the bottle when sealed (British Patent 1170, W.R. Lake, 1883). It was more popular than the Codd (marble) bottle in the U.S.A. during the period c. 1880-c. 1910 but rarely used in Britain or Australia, with only three users appearing in Appendix 1. A very similar device, right in the mouth of the bottle and also used in the U.S.A., was the Baltimore seal.
5.7.3 Ledge seals. The spate of patents and the rapid application of internal sealing between c. 1870 and 1890 followed the development of a finishing tool such as that of Lamont (Fig. 73). With this finishing tool a central plug could be inserted through the neck of the hot bottle and then expanded to mould an internal ledge.

In the Lamont patent, the shaped rubber washer on the stopper formed a pressure resistant seal against the similarly shaped ledge-mouth (Fig. 74). The hard vulcanised rubber washer was forced down a special tapered tube and sprung over one end of the stopper while inside the bottle.

When the Leon Vallet type seal was used (Fig. 75), the elastic rubber was folded on the stem and recovered its position after the stopper was pushed through the neck into the bottle.

There are many variations of stoppers and ledge-mouths with their major identifying feature being the shape of the internal ledges found in the upper neck just below the finish. The ledges may be flat, inclined, curved or ridged. They may also be identified by the type of stopper in the bottle if it is available. In Australia many of these variations are classed by collectors simply as ‘Lamonts’. Detailed investigation of the ledge or stopper in relation to patent records may provide closer dating in their period of general use, that is, between c. 1875 and c. 1910.

5.8 Spherical (marble) seals

The well-known glass marble or Codd bottle, first described in British Patent No. 3070 of 24 November 1870 and later covered by several other patents, relied on
Figure 73. Internal ledge-forming tool after Lamont. British Patent No. 1923, 1874.

Figure 74. The Lamont type seal c. 1875-c. 1910.

Figure 75. The Vallet type seal. British Patent Nos 1210, 4863, 13158, 1879/1885.

Figure 76. Groove-forming finishing tool. Dan Rylands, British Patent No. 1486, 1882.

Figure 77. One way pour Codd in pale-green glass. Tooth & Co. Ltd Sydney, c. 1880-1900. (Reproduced with kind permission of the Trustees of the Museum of Applied Arts & Sciences).
the internal seal between a smooth spherical ball (preferably of glass) and a ring of cork, rubber or gutta-percha. The ring fitted closely into, and protruded from, a small annular groove in the bore.

5.8.1 **Internal groove-forming tools.** The Codd patent and a further patent with F. Foster on 29 December 1873, also outlined the finish-forming tool which was essential to mould the internal annular groove. D. Rylands in British Patent No. 1486 of 28 March 1882 and E. Breffitt in Patent No. 4660 of 8 December 1877 also described similar improved tools (Fig. 76).

The early difficulty of the marble rolling back into the neck and throttling the flow while pouring, was overcome in British Patent No. 2621 of 3 September 1872 by narrowing the lower part of the neck and providing a semi-circular recess above this. The trapped ball was retained in the recess during pouring (Fig. 77). Projecting ridges inside the neck were also provided to guide the ball into the recess.

5.8.2 **The original Codd bottle** had a recess on one side of the neck. Early manufacturers are said to be W. Brooke of Hunslet and Alexander & Austin of Blaydon in Britain (Ref. 30). Ben Rylands of Barnsley commenced manufacture at least by 1874 and went into partnership with Codd in 1877. There is good reason to believe that bottles before and after Ben Rylands death in 1881 were marked Ryland and Codd (1877-81) and Codd and Rylands (1881-84) respectively. The original patent expired after the fourteen year period in 1884 and the partnership with the son Dan Rylands was then dissolved. Reasonably close dating of such early bottles should be feasible although it has not been possible to cite examples definitely used in Australia before c. 1880.

5.8.3 **The Gledhill patent.** Although a patent No. 2882, similar and earlier than that of Codd, was provisionally registered in 1871 by Kilner Bros, who exported widely to Australia in the c. 1870-c. 1910 period, it was not upheld after a legal battle. The only reasonably successful competitor was the Gledhill patent in New Zealand (N.S.W. Patent No. 389, 24 November 1873). Gledhill used an elastic ball sealed against a spherically formed lower part of the bottle neck (Fig. 78). There appears to be no way of proving the exact date of such bottles; the period c. 1875-c. 1890 seems most likely.

![Figure 78. G. Gledhill (New Zealand), Elastic ball patent c. 1875-c. 1890.](image)
5.8.4. Codd Variants. Particularly after c. 1883, there were many Codd variants (Fig. 79) which have been the subject of books and articles by collectors and others (Refs 30, 53, 60, 81) – of whom Olive Talbot (Ref. 30) is the most authoritative.

After the partnership of Rylands and Codd was dissolved, Rylands bottles were marked Dan Rylands. The earliest variants were the so-called ‘bulb’ bottle by both the Rylands and separately by Codd, and the Rylands valve patent of 1882. The bulb type Codd was manufactured in Australia by Ross & Co., probably around 1890 (Fig. 80). Other developments were Rylands’ ‘Patent Safety Groove’ of 1885, the ‘Eclipse’ of 1886 and ‘Niagra’ of 1888 both of Barnett & Foster, the ‘Four-way’ by Chapman & Sons, the ‘Premier’, ‘Reliance’ and ‘Acme’ all by Rylands by 1888, and several others. Most of the changes related to minor alterations in the form of recesses and guiding grooves for which each supplier claimed advantages as the competition intensified.

Figure 79. Summary of the main types of Codd variants, usually occurring after c. 1885.

Overall, these variants, including the final adoption of the typical broad shouldered appearance of most Codd bottles, date from around 1880-85 and the majority found in Australia will be after the latter date.
5.8.5 **Coloured finishes.** In 1888, after the expiry of the Codd patents between 1884 and 1887 Ryland patented the concept of making the finish a different colour from that of the bottle thus defending his hold on the manufacture of Codd type bottles. These bottles are found from time to time in Australia and form a good datal bench mark of c. 1890-c. 1905. In the same period many manufacturers responded by colouring the whole bottle, amber, chrome green or cobalt blue.

By c. 1910 in both Britain and Australia, the Codd type bottle had completely displaced the ovate-shaped ‘Hamilton’, with the last advertisements for the Hamilton appearing in Britain around 1916. The Codd type itself was gradually replaced by the present crown-cork and other finishes after the introduction in Australia of automatic machines over the period 1920-c. 1935.

5.9 **Screw finishes**

5.9.1 **Internal screw.** The internal screw stoppered bottle was first suggested by Sykes and Macvay in 1877 in a patent in which an internal marble matched an internal screw stopper. In 1879 a patent was issued to H. Barrett for a stopper with a coarse pitched thread fitted into a cork or rubber sealing. This sealing screwed into the corresponding female thread formed inside the bore of the finish (Fig. 81).

The hand or machine moulding of an internal screw thread inside the finish of a bottle is more difficult than for a single groove. A modification of the finishing tool (Fig. 60) to provide a coarsely threaded plug was necessary. This plug had to be unscrewed from the glass when it was just
stiff enough to do so without the plug sticking in glass that was too hot or the glass cracking if too cool.

Figure 81. Internal screw seal, Barrett 1879, Riley 1885 onwards.

Examples in Australia appear to occur more than ten years after the original patent; for example O'Connor Bros Sydney, c. 1889-c. 1895. This finish, (with variations such as the ‘chisel-headed’ stopper, designed by Riley in 1885) competed with the more popular Codd (marble) patent in Australia and in Britain. In the U.S.A. it also competed with the Hutchinson and Baltimore seals. It remained in use for a longer period (c. 1890-c. 1960) possibly because of its advantage of resealing the bottle.

5.9.2 **External screw - wide-mouth** finishes were first used for bottling jars and their eventual extensive application is intimately linked with the introduction of semi-automatic and automatic glass-making machines.

Early methods of preserving fruit, meat, fish and vegetables consisted of covering the food with mutton fat and sealing the bottle with waxed paper. In 1855, Robert Arthur invented a metal lid with a circular skirt dipping into a wax-filled groove moulded in the broad upper surface of the glass finish. Bottling jars of this form continued to be made in the U.S.A. by the Star Glass Co. c. 1860-75 and Ball Bros 1888-1912. They do not appear to have been imported into Australia.

In 1842-43 both Goodyear in the U.S.A. and Hancock in Britain vulcanised rubber. In 1858 James L. Mason patented a zinc screw cap which forced a vulcanised rubber ring onto the ground glass lip of a fruit jar by engaging the male thread on the reinforcing collar (Fig. 82).
Like many ingenious devices it was not widely adopted because it was undesirable to have food in direct contact with zinc and possibly because it was more difficult to make an external screw than an internal screw finish with a finishing tool. In 1868-69, Hero Glass Co. adapted Mason's patent by using a flat glass plate and rubber ring. This was followed by L.R. Bond of New York who adopted an opal glass or porcelain liner to hide seepage or prevent contact of the fruit juice with the rubber.

These American preserving jars were imported into Australia between 1875 and 1880 with porcelain-lined screw tops by S. Hebblewhite. In a sales advertisement he notes:

"Cherries, gooseberries etc etc can be preserved very simply by boiling slightly sweetened water and then bottled while hot in the preserving bottles, with porcelain lined screw tops, and will keep for any time." (S.H. 1.1.1880, p. 7.)

He even took the trouble to have the previous year's preserves on display.

This form of wide-mouth finish was widely adopted in Australia (Ref. 76) from c. 1880 onwards particularly as it could be precisely moulded on semi-automatic press-and-blow machines introduced about 1890 (Refs 21, 41).

5.9.3 External screw - narrow-mouth. F.J. Belzung of London patented a machine to form an external thread on the reinforcing collar of a pontil-held bottle in 1852, but it is very doubtful that this patent was ever practically applied. The external thread involved moulded ridges with a free release of the mould (Fig. 44) once the glass was effectively set. This made the smooth rotation of the glass in a hand-held finishing tool difficult. Also, although the earlier wide-mouth press-and-blow machines and the Owens suction machines (c. 1904 on in the U.S.A.) could produce this type of finish, it appears to have been more difficult to achieve with the narrow-mouth blow-blow machines used in Britain up to c. 1920.
Nash patented an external screw cap with a crimped skirt rather like a modern crown-cork in 1907. However, possibly for the above reasons, the now widely adopted narrow-mouth screw-cap (Fig. 83) does not appear in advertisements until after c. 1920.

5.10 Miscellaneous seals

There were between seven and eight-hundred British patents for carbonated drink bottles between 1871 and 1885 alone and at least a comparable number in the U.S.A. Thus, it is not possible to list all the different finishes marketed in Australia.

When unusual closures, finishes or bottles arise, the following sources of information are of value:

The Index of Letters of Inventions 1854-87 in the Attorney General’s Department (Australian Archives 1006/15-20).

The Index of Letters of Australian Inventions (Australian Archives CRS 84, Vols 2 and 4).

A Patents Summary of British Internally Stoppered Bottles 1868-1907 prepared by the British Bottle Collectors Club and published by E. Fletcher (Ref. 54).

The first two of these sources show that several additional finishes and closures were likely to be used in Australia including the following:

Horner Patent No. 607, 1877. This is a metal nozzle anchored to a rounded 'blob-top' finish into which a rubber-seated porcelain or lignum vitae stopper is pressed (c. 1880-1900).

Langley Patent No. 694, 1878 is a metal capsule screwed into the internally threaded bore of the bottle and sealing onto a rubber washer on the finish lip (c. 1880-1900).
BOTTLE FINISHING AND FINISHES

Starkey Patent No. 736, 1879 is a wire-anchored stopper of earthenware or wood recessed on the underside of the head to house a rubber washer used to seal onto the finish lip (c. 1880-c. 1920).

B.C. and D. Cross No. 3548, 1892 is a cork lined metal capsule fitted with lugs which are made to engage an undercut moulding in the reinforcing collar when pressure is applied.

Felton and Grimwade Patent Nos 4333/4, 1893 relate to a glass stopper with a circular rubber washer in the lower face, sealing onto the lip by an external screw or swing-stopper fitting (c. 1893-c. 1920).

Examples of the Horner, Langley and Felton & Grimwade finishes have been found in Australia.

![Figure 84. Horner patent.](image1)

![Figure 85. Langley patent.](image2)

5.11 Identification

The introduction of various forms of finishing tool (Figs 60, 73, 76), and of semi-automatic and automatic machines, resulted in the wide range of special finish designs outlined in Sections 5.2 – 5.10. Many of these are identifiable by close inspection of the lip, bore and neck of a bottle. Such identification of the form of closure often provides the most useful guide to the period of its manufacture and use.

Some changes, such as those for the anchoring and reinforcing collars and reinforcing on common ‘black’ wine bottles, took place over a period spanning up to fifty years. Thus, conclusions concerning their period of use are general. In other instances, for example, the adoption of the Codd, Lightening and Crown seals in the 1870-1900 period, where there is clear evidence of their immediate adoption after (and not before) patenting, it is often possible to place a precise limit on their age. The delay in introduction of these patents, such as those for milk bottles, may also be known.

In attempting to use the preceding evaluation of finishes, it is necessary to appreciate that widely differing forms of reinforcing or anchoring collars or
beads, moulded by hand, finishing tool or machine, were in use for different purposes at any one time.

Also, in common with other moulding methods, some applications in clear and coloured glassware were sometimes well ahead of similar developments in common bottles. Here again, there are likely to be advantages in giving closer attention to clear and coloured, as distinct from common ‘black’ glass artefacts.

6.0 FORMING AND MOULDING METHODS

In addition to the traditional methods of forming and moulding glassware (with or without aids) outlined so far, there are several alternative methods. These techniques are normally known by the names of the major process or processes used and are placed below in chronological order:

Pressing
Press-and-blow
Blow-blow
Suction

Each can result in a slightly different arrangement of mould seams and other characteristics, which may be used to identify the moulding method and on occasion place some limitation on the age.

6.1 Pressing

Small pressed glass cups and amulets are said to have been made in Egypt as early as 1400BC (Ref. 74). Similar examples of pressed glass have appeared from time to time, in common with the possible use of engraved moulds (11, 15, 17, 23, 29, 31). Some pressed glass stoppers were also made for decanters in the eighteenth century (Refs 62, 74). Indeed, Jarvis (Refs. 59, 62) claimed that in the eighteenth century he imported pressed Holland salts and English candlesticks and table centre bowls ‘plain, with pressed square feet, rudely made’ into the U.S.A.

However, the major modern development of this technique took place in the U.S.A. in a series of patents relating to the manufacture of glass door knobs in the period 1825-33, soon after the development of decorated figured ‘historical’ flasks from engraved moulds (Ref. 74).

6.1.1 Principles of pressing glass. The basic principle (Fig. 86) is very simple, as indeed was the original form of press in Apsley Pellatt’s 1849 Curiosities of Glass Making. This type was followed successively by the side-lever press (1854) which exerted much higher pressure through a toggle; a steam-operated press (1864); a revolving table carrying several press moulds below a press head (1871); and various forms of fully power-operated mechanical presses (1873-75).
a. Hot glass drops into the mould  
b. Glass settles  
c. Plunger descends and the glass is pressed  
d. Finished article with mould seam at lip

Figure 86. Basic principles of glass-pressing.

Figure 87. Typical plunger shapes for glass pressing - all have tapered sides.

Figure 88. The side-lever press. (E. Meigh, *The Story of the Glass Bottle*, p. 32.)

The counter-weighted lever and spring-controlled upper plate (Fig. 88), and later modifications, do not alter the basic simplicity of this technique. It requires a regulated quantity of glass to be placed between the lower, patterned mould and a smooth, upper plunger. The precisely shaped and
patterned article is formed when the plunger is pressed down onto the hot glass in the patterned mould.

Figure 89. Round-edged appearance of pressed glass decoration under magnification.

Figure 90. Sharp-edged appearance of cut glass decoration under magnification.

6.1.2 Identifying features. There are three identifying features of pressed glassware:

* All pressed glassware has a smooth internally tapered surface formed by the smooth plunger. The shape can vary (Fig. 86), but must allow the plunger to be lifted vertically out of the body of the pressed glassware (Fig. 87).

* All pressed glass articles have a mould seam at the upper, outer lip (Fig. 86d). Frequently, with high machining standards and the blending of the seam into the complex engraved designs on the outer surface, it is difficult
to locate and identify. A lens or finger-nail across the surface may be needed.

* The decorative designs appear on the outer surface and are all formed by the engraved outer and lower mould. The pressed glass decoration has a rounded-edge appearance (Fig. 89) due to the surface tension of the original hot glass. It is recognisably different from that of cut glass (Fig. 90) particularly when it is inspected under a lens. The rounded edges tend to distort and blur the reflected light so that the whole piece does not have the brilliance of cut glass.

The flat-sided sharp-edged appearance of cut glass decoration will usually be distinguishable from that of pressed glass even if the glass has been buried for more than two years in damp conditions subject to the action of microbes which leach and round sharp edges.

Within the above limitations on plunger design, pressing is quite a versatile process and split hinged moulds (Fig. 91) with additional vertical seams and complex fitted moulds with several seams are possible. All have the common features of a tapered plunger and a mould seam at the lip.

![Figure 91](image)

*Figure 91. A student's diagram of a more complex press mould for a stemmed goblet (1937) with a lift-off cylinder, hinged shell-mould and push-up device. The mould seams correspond with points 's', together with two vertical seams down the stem.*

With both simple block moulds (Figs 86, 87) and more complex moulds, a common feature is a push-up ejection device (Fig. 91) in the centre of the base which often leaves a small circular mould mark.
6.1.3 Imports and manufacture. The import of cheap pressed glass from the U.S.A. made the same great impression in Australia as it did in Europe. It was announced in block letters in sales advertisements in the Sydney Gazette in 1835. The first imports were highly decorated cruets (S.G. 14.2.1835, p.3, 19.3.1835, p.3). The development of pressing was closely linked with the increased use of engraved moulds. (See Section 4.4.5) Early moulds were of brass as cheaper cast iron moulds gave a rough surface finish. An iron mould was patented in 1821 (Ref. 66) and Ricketts evidently used cast iron three-piece bottle moulds (British Patent No. 4623, 1821) at that time (Ref. 17).

![Figure 92](image.png)

In Britain, pressed glassware started to replace the more expensive free-blown crystal tableware in the period c. 1835-c. 1865. The introduction of chilled cast iron moulds in 1866 (Refs 48, 66) resulted in cheaper, high quality engraving. From that time there was a rapid increase in the use of engraved moulds for the manufacture of a wide range of decorative lead crystal and common soda-lime-silica glass tableware.

The use of pressed designs expanded rapidly. Some three-hundred pages of diverse pressed designs of over seventy American companies and their detailed historical background, are summarised in A.C. Revi's *American Pressed Glass and Figure Bottles* (Ref. 74).
The corresponding expansion in Britain occurred mainly on the north-east coast. Three companies, Davidson, Greener and Sowerby-Ellison, manufactured and exported immense quantities from c. 1860-70 onwards to Australia and other parts of the world. The Sowerby-Ellison factory, which commenced in 1855, was described in 1882 as the largest pressed glass factory in the world. From c. 1876 onwards these three plants usually marked their products with small embossed trade marks about 6 millimetres (1/4 inch) long. Many of their designs were patented and also showed an embossed diamond registration (dating) mark (see Appendix 2).

Marjorie Graham (Ref. 55) provides many examples of imported and locally manufactured pressed glass and also a detailed appendix on Crown Crystal pressed glass products, similar to the selection illustrated in Figure 92.

The identification of pressed glass artefacts on an Australian site thus provides a definite time restraint (after 1835) but designs are so diverse that a case history approach is usually required to date individual examples. Many such Australian artefacts will date from c. 1860-70 when there was a large expansion in the production of pressed glass in Britain.

6.2 Press and blow

Free-blowing, two and three-piece moulding and turn-moulding of common bottles continued throughout the nineteenth century. These methods were gradually superseded by semi-automatic and finally fully automatic machine production in the period c. 1890-c. 1920. The glass industry was probably one of the first in the world to achieve full automation from raw materials to finished product.

6.2.1 Principles of press and blow. The first major concept of this process, described in an American patent by Arbogast in 1882, was the pressing of the finish and half-formed parison of a wide-mouth jar in a narrow funnel-shaped two-piece mould and its transference to a second larger and wider two-piece blow-mould. It was then blown to its final shape using compressed air (Fig. 93). Arbogast's press-and-blow technique was not commercially successful until 1893 (that is, after the blow-and-blow method described later). At that time the Enterprise Glass Co. took out a license under the patent and developed a machine to make wide-mouth Vaseline jars (Ref. 66).

An important improvement, based on the British patents by Windmill (1886) and Rylands (1889) and already in use, was made in 1896 by Charles Blue for the Atlas Glass Co. It allowed the press mould to fall away and leave the glass hanging within the final blow-mould (Fig. 93).

6.2.2 Identifying features. Press-and-blown bottles have wide-mouths, usually above 38-51 mm (11/2-2 inches). They show the double parison and blow-mould seams, typical of a machine-made bottle (see Section
Figure 93. PRESS and BLOW forming sequences for machine-made containers.
F = finish mould, P = plunger, PM = parison-mould, BM = blow-mould

Glass gob enters
Glass settles
PRESS Finish & Parison.
Parison transfer
Parison Surface Reheat
BLOW into blow-mould (BM)

Figure 94. BLOW BLOW forming sequences for machine-made containers.

Glass gob enters
Blow or suck down forms finish
BLOW back forms parison
Parison inversion & transfer
Parison Surface Reheat
BLOW into blow-mould (BM)
6.5). In particular, the inner join (IJ, Fig. 8b) of the traditionally made bottle is absent, the finish and body of the bottle being one continuous piece of glass.

6.2.3 Manufacture and imports. One ‘Blue Machine’ was in operation in Britain by 1900 while many were in use in the U.S.A. particularly for producing Atlas and Ball Bros fruit jars. The adoption was quite rapid and rose to between 167 and 233 press-and-blow wide-mouth machines in the U.S.A. between 1906 and 1917 (Refs 33, 34). A similar type of machine was developed by Schiller in Germany in 1905-07.

Arnold states that Mount, the governing partner of the Melbourne Glass Bottle Company, visited the U.S.A. about this time (c. 1895-1900) and imported two hand-operated wide-mouth machines that used compressed air (Ref. 41). Presumably these were for bottling jars, in which the company was then very interested (Patents 4333/4, 1893 to Felton, Grimwade and Mount). By c. 1906 they also had a press machine for making glass liners (Fig. 82) for bottling jars. Murray & Vader (Ref. 69) also claim that Vance and Ross (1904-15) machine made an improved Mason bottling jar. These local details require more precise verification.

As American preserving jars were imported and widely advertised between 1880 and 1900, press-and-blow type jars, both imported from Britain (Rylands), the U.S.A. or locally manufactured in Melbourne, may well be found in Australia from their inception i.e. from c. 1890-95 onwards.

6.3 Blow and blow

The British patents by the engineer Ashley in 1886-89, followed up the much earlier suggestion of the local village postman, Josiah Arnall to Edgar Breffit, of the Aire and Calder Glassworks, in 1866, to entirely reverse the bottle-making procedure used by hand-workers (Ref. 12).

6.3.1 Principles of Blow and blow. The finish, narrow mouth and bore, which were previously made by the laborious process of applying additional hot glass to a bottle supported on a pontil or holder, were formed first (not last), around a small plunger (P) in a two-piece finish-mould (F) (Fig. 95). Secondly, after withdrawing this plug, a pre-form parison shape was blown by compressed air in a two-piece funnel-shaped parison-mould (PM). Finally, after inversion, whilst being held by the finish of the half-formed bottle, the pre-form was blown to the final shape in the two-piece blow-mould (BM) (see Fig. 94). In the original form of this machine (Fig. 95), its various parts were mounted on a vertical plank, hence its popular name of the ‘Ashley Plank’ machine. The glass was hand-gathered and fed into the parison-mould (PM). Both the finish-mould (F) and parison-mould had long pincer-like handles for their removal by hand at the appropriate time.
6.3.2 **Identifying features.** These bottles have a narrow mouth, usually less than 38 mm (1 1/2 inches). They also have the double mould seams, finish-mould seam and absence of an inner join (IJ, Fig. 8b), which is typical of all machine-made bottles (see Sections 6.2.2, 6.5).

![Diagram of blow-blow machine](image)

P = plunger F = finish-mould BM = blow-mould PM = parison-mould

Figure 95. The Ashley 'Plank' blow-blow machine.

6.3.3 **Manufacture and imports.** Although Ashley disclosed the basic semi-automatic blow-blow procedure in 1886-89 and his company operated twenty-two machines in Castleford, Yorkshire, before 1894 (Ref. 21), his machines and their developments, were largely brought to commercial success between c. 1894 and 1914 notably by Cannington Shaw, St Helens, in Lancashire, Bagleys, Lumbs, Rylands and Kilners, all in South Yorkshire. They were developed further by Horne (U.K. 1897), Boucher (France, 1897), Simpson/Bradshaw (U.K. 1901), Schiller (Germany 1903), and Sweeting/Hardman (U.K. 1923). In excess of seventy-nine such machines were in operation in fourteen companies in Britain by 1907 and one company was operating almost entirely semi-automatically by 1914 (Ref. 33). Although the Owens suction machine was in use by 1904, blow-blow methods were not used in the U.S.A. until 1908 after which the number of these machines then rose rapidly from 19 in 1909 to 292 in 1917 (Ref. 34).

It seems reasonable to suggest that the Melbourne Glass Bottle Works and Vance and Ross in Sydney used a form of these semi-automatic
blow-blow (as well as press-and-blow) machines from c. 1905 to 1918. After the consolidation of the Glass Manufacturing Company with Vance and Ross in 1915, Mr. W.J. Smith and Mr. W. Kennedy of Australian Glass Manufacturers visited the U.S.A. in 1917 (Ref. 90). On their return they installed rotary four-blank, four-mould, gather and trip ‘Boy’ machines which commenced operation in 1918. These machines only required one ‘boy’ to gather and then trip the machine, thus bringing Australia close to American and European practice at that time.

6.4 Suction (suck-and-blow)

The third major development in forming and moulding methods was by Owens in the U.S.A. in which a fixed quantity of glass was sucked up by vacuum into the two-piece parison and up into the two-piece finish-moulds and around the plug, directly from the molten glass surface in a specially constructed part of the melting furnace.

The hot glass was sheared off by a rotating knife blade below this parison-mould, leaving the major identifying feature of a shear scar (Fig. 96). Finally, this hot pre-form or parison shape was blown by compressed air into the blow-mould. Apart from the method of filling the parison and forming the finish by suction, the process and identifying features are identical to the preceding blow-blow process.

![Figure 96. Suction scar on bottle base resulting from the smearing of hot viscous glass by cut-off knife below parison-mould.](image)

| P = parison-mould scars |
| ← = Direction of original cutting causing scar |

The initial work on this project began in 1898 using a simple piston in a cylinder, attached to a plug and parison-mould assembly. This led very rapidly to the development of a highly successful six-arm rotary machine in 1903 and later to multiple-arm machines, many of which continued in operation until c. 1940-50. By 1911 over one-hundred Owens machines produced more than four-million bottles per year in the U.S.A. alone and there were 172 machines in operation in North America by 1913. Owens set up a machine in the Trafford Park area of Manchester in 1906, followed by an organisation which resulted in forty machines operating in ten European countries by 1913 (Ref. 34). Owens machines were never used in Australia probably because of the high capital cost.
While the degree to which semi-automatic machines were used by Australian Glass Manufacturers and others between c. 1900 and 1918, does not appear to be well-documented, the same does not apply to the use of hot glass feeders. These successfully formed and sheared pieces of hot glass (gobs), flowing from a controlled orifice in a specially constructed part of the smelter called a ‘feeder-channel’, and fed them successively to the parison-moulds of machines. These ‘feeders’ ensured that previously semi-automatic forming machines could be made fully automatic and operated without hand-gathering on a blow-pipe.

The forming of glass bottles finally ceased to be a craft-based operation and commenced to be a fully automatic engineering process. The first paddle and needle feeder was purchased by Australian Glass Manufacturers from the Hartford Empire Co. in the U.S.A. in 1918 (Refs 33, 34), thus comparing favourably with the adoption between 1914 and 1918 of Rankin, Miller, Peiler and other feeders overseas.

These three semi-automatic, or fully automatic, press-and-blow, blow-blow, and suction methods are usually referred to as the machine-made processes, in that bottles produced by these methods differ in several respects from those made by the older hand-made processes.

6.5 Characteristics and dating of machine-made bottles

Based on the preceding historical outline and the detailed assessments by Turner (Refs 33, 34) and Moody (Ref. 21) of the development and application of bottle-making machinery, Table 5 summarises the first likely dates of finding machine-made bottles or jars in Australia, from the three main sources of Europe (mainly Britain), the U.S.A. and local manufacture.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>ex EUROPE</th>
<th>ex U.S.A</th>
<th>ex AUSTRALIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide-mouth jars</td>
<td>1890-2</td>
<td>1892-4</td>
<td>1895-1900</td>
</tr>
<tr>
<td>(Press-and-blow)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow-mouth bottles</td>
<td>1890-95</td>
<td>c1910</td>
<td>c1910-15</td>
</tr>
<tr>
<td>(Blow-blow)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow-mouth (Suction)</td>
<td>c1910</td>
<td>1904-6</td>
<td>None</td>
</tr>
</tbody>
</table>

Table 5. Summary of likely dates of first appearances and origins of machine-made bottles on Australian sites.

The identifying features of machine-made bottles are illustrated by a modern wine bottle in Figure 97. They follow from the use of the two-piece parison and blow-moulds and two-piece finish-mould and plug assembly given in Figures 93 and 94 and are:
* The finish of the bottle is an integral part of the neck and body (Fig. 97a). There is no inner join (Fig. 8b) of glass added to make the finish, as in hand-made bottles and the bore is smooth and has no uneven ridge corresponding to a join of added glass.

* The finish does not have turn or tool marks (Fig. 8a). The surface has the same appearance as the rest of the neck or body, as both have been moulded.

* Looking down on the top of the container, the finish has two concentric circular mould seams: one just inside the bore (not visible in Figure 97 a) and the other (F) around the outside of the lip clearly visible in Figure 97 a. These identify the glassware, such as a bottle, as clearly being machine-made. The two mould marks correspond with the inner junction of the collar and plunger and the outer junction of the collar and finish-mould halves (Figs 93, 94). These mould seams are made in the first pressing of the finish and bore.

* The neck, body and base have two sets of mould seams often referred to as ‘double’ or ‘ghost’ seams:

The set due to the two halves of the parison-mould and its base (called a baffle-plate), formed in the pre-form or parison, consist of well-defined diametrically opposed vertical lines (P) (Fig. 97 b). These lines are well-defined near the neck and the heel, but, due to the blowing out of the final shape, are fainter, more ghost-like or non-existent in the body, and in a circular baffle-plate mark (BP) in the base.

The corresponding set (B) are due to the two halves of the final blow-mould and its base-plate. They consist of well-defined diametrically opposed vertical marks in the body and a circular circumferential mark on either side of the heel (Fig. 38), depending on the form of base-plate used. The vertical body seams become ghost-like or disappear in the neck, where the final shape is effectively formed in the parison.

The two sets of mould seams are usually close to each other, but not coincident, as the parison shape usually swings or moves slightly during transfer between the parison and final blow-moulds.

* The mould seams are much more clearly defined than earlier hand-made bottles due to the use of greater pressing and blowing pressure.

* There is also a circumferential seam (P) between the finish and the neck corresponding to the join of the parison-mould and the finish-mould (Figs 93, 94). This seam is better defined and nearer the finish than any blow-over mark (Fig. 34) from a full-length hand-blowing mould, or from the effects of turning in a finishing tool. Finally, there is the vertical seam (F) between the finish-mould halves.

Although this last feature is typical of machine-made glassware, it is not a unique identifying characteristic particularly for wide-mouth jars. Robert Hemingway, in his American patent No. 30063 in 1860, used a mould with separate ‘finish-moulds’, which opened by lifting, to make the groove for fruit jars.
Figure 97. Base and shoulder of a modern machine-made wine bottle.

The above features are common to all forms of machine-made glassware with the exception of spun paste-moulded bulbs etc., or more recently, centrifugally cast tableware. The identification of these characteristics in glassware, or in a broken artefact, decisively identifies the glass as being relatively modern – after c. 1890-95 (Table 5).

Also, as a consequence of machine-moulding, when dealing with large quantities of broken glass, statistically, the proportion of identifiable mould seams in the bulk would be expected to rise markedly on a site after c. 1895-1905.

A suction scar in the base of an artefact places the glass after c. 1905-10 (Fig. 96).
6.6 Mould seam assessment

In practice, the identification of different mould markings and the other effects of manipulation described in this publication, require very careful inspection and assessment, using a hand lens if necessary. Mould, tool and turn marks vary in depth and ‘sharpness’ depending on the pressure applied and fluidity of the glass as it stiffens and cools at each stage of the forming process.

The contrast in sharpness between the hand-blown, dip moulded wine bottle in Figure 34, where the blow-over mark on the shoulder is just visible; the deep holder marks on the base of the square case gin in Figure 31; and the precise moulding of the modern wine bottle in Figure 97, all serve to emphasise the large differences that can occur.

The markings on hand-blown glassware can be quite light and not always well-defined because the pressure applied by mouth blowing is low and some movement of the glass often takes place during the final stages of blowing and setting of the glass. Indeed, by giving a short puff and then placing his thumb over the end of the pipe to entrap the cold air, the craftsman can adjust this pressure precisely (as the air heats up) and allow the glass to distend gradually to just touch the mould or attain a given size. Skilled artists in the craft become very sensitive in using this type of technique.

In contrast, very high pressures are available in glass pressing or in machine operation using compressed air both of which result in clear seams and clear embossed designs.

The prominence or faintness of the seam can also provide evidence of the stage in the process when it was formed as Figure 97 clearly shows. At the top of the bottle, the finish-mould seams (F and F') and the parison-mould seam (P) are clearly defined but the blow-mould seam (B) gradually disappears above the shoulder - thus indicating that the final shape of this part of the bottle was formed in the early stage of the process.

In the body of the bottle, the parison-mould seam (P) becomes ghost-like and the blow-mould seam (B) becomes prominent. This indicates that the hotter glass in the body, after the surface reheats, is blown up into the blow-mould and the stretching of the glass surface partially eliminates the parison-mould seam (P).

At the base of the bottle (Fig. 97b), the markings of the parison (P) and the baffle-plate (BP) are still faintly visible even though the position of the mark BP has ‘swung’ off centre on inversion of the parison during transfer (Figs. 93 and 94). The vertical blow-mould seam (B) under the label, is even clearer near the base than in the body, as is the circular seam between the blow-mould and base-plate. This indicates that the hotter glass in the base is relatively readily moulded even in the final blowing stage.
The moulding of an unembossed pale-greenish amber ‘case’ gin bottle (Fig. 98) is not so easy to assess. This example will be detailed to illustrate aspects of inspection that can be of value as such plain bottles are most difficult to date accurately.

a. **The appearance of the finish.** The wrap around join-mark (J), the surface tool marks (T) in the neck, the join of the added glass (not visible but identified inside the bore) and the uneven line of the finish, all identify this as a typical ‘hand-blown’ type of bottle and thus it is placed before 1920.

b. **Measurement of the dimension of the finish.** These show that the lip has an external diameter of 24 mm (approximately 1 inch) and the bore is 17 mm (5/4 inch). This bore was used to accommodate the half-inch filling tube common in the nineteenth century. The deep 20 mm (5/10 inch) finish height is typical of that adopted after c. 1850-60 (see Figs 20, 59).

c. **Inspection of the base** (Fig. 98b) shows that it is not pontilled which again places the bottle after 1860/70 (see Fig. 32). The three raised circular embossed 'knobs' in the corners could be a trade mark or indicate the type of contents. However, they are much more likely to be locating seatings for some type of gadget holder (Fig. 30). The fainter, circular surface marking ('O') is too shallow to be an engraved letter and is probably a repair peg of metal inserted in a blow-hole (i.e. a defect) in the metal base-plate of the mould. This 'O' mark is precisely like that produced by an air-vent, or push-up ejection device in the bottom of a press-mould (Fig. 91) but these are normally in the centre of the base. Finally, the existence of a precisely moulded base-plate, seam BP, confirms that it was made in a metal mould. For such a common bottle, this again implies that it is likely to have been made after c. 1860.
d. **Inspection of the body and shoulders.** The mould seams were by no means immediately obvious as is the case with a machine-made bottle. After close inspection with a spotlight inside the bottle it became clear that the blow-mould seams were diametrically opposed starting on the shoulder, at B, and surprisingly going down the centre of the flat panel to B'. They were not along the obviously engraved mould lines (E). It was noticeable in reflected light, that the faint mould mark came across both shoulders, at B, and that there was a slightly rough point where this seam met that of the base-plate on each side of the base.

Far from being an entirely hand-made bottle (the first impression) this common bottle had been blown into a two-piece metal mould with a slightly cupped, well-fitted base-plate (Fig. 38 c). Checking with a straight edge showed that the flat panels were slightly hollow indicating that the craftsman had avoided blowing them up fully so that the unsightly mould marks down the centre would not show. The surface of the glass was whittle marked. These markings are typical of this partly unblown condition and/or blowing the glassware in a cold mould.

The use of such a closely-fitted two-piece mould, with a cup-bottom plate rather than the three-piece tapered mould commonly used in the 1860-1920 period, suggests that this bottle was made later rather than earlier and probably in the 1890-1920 period.

e. **Capacity.** The capacity proved to be 850 mL (30 fluid ounces) to a reasonable filling point of 50 mm (2 inches) below the lip and 1000 mL (35 fluid ounces) brimfull. After c. 1800-20, British bottles became more and more standardised on the reputed quart (approximately. 750 mL, six to the gallon, 26½ fluid ounces) (Ref. 22). This fact would favour the bottle being of European origin.

f. **An unusual feature** and the original reason for the inspection of this particular bottle, was the presence of an old cracked-off piece of glass stuck inside the bottom of the bottle. The piece was evidently left over from hand-blowing.

Such is the accumulation of information that can be gained from one very 'nondescript' bottle. Strictly, it is only possible to say it was likely to have been made between the outside limits of 1860 and 1920 and in all probability in the latter part of this period. In this instance however, the information is almost sufficient to suspect that someone might be trying to make the bottle 'look old' using relatively modern well-fitted mould equipment - a practice not unheard of in recent years when old square case gins sell for dollars not cents! As the moulding methods change from simple free-blowing to the more complex double-mould machine production, the preceding examples indicate that, by careful inspection, the moulding history is, in effect, often written on the glass surface. Detailed and methodical inspection can provide some guidance on the dating of glass artefacts in widely varying degrees for the different processes.
7.0 FLAT GLASS

Flat glass was imported to Australia from first settlement. Indeed, in 1788 Governor Phillip requested window glass ‘not less than 10 inches by 8’ (254 mm x 203 mm (HRA 1, Vol 1, 9.7.1788, p. 59) while six cases of window glass and two cases of looking-glasses were landed in the Friendship in 1800 (HRA 1, Vol 2, 25.9.1800, p. 572).

7.1 Forms of flat glass

The methods, and their developments, for the manufacture of window glass and plate glass for mirrors differ considerably. Window glass was first made in Europe largely by the ‘Broad glass’ process while the ‘Crown glass’ method was usually preferred in Lorraine and Britain. The Broad glass technique was a simple form of cylinder cutting and flattening. It was later improved and increasingly larger sizes were made by the ‘Flattened cylinder’ and ‘Machine cylinder’ methods. The continuous ‘Direct drawing’ and ‘Float glass’ processes were developed early in and midway through the present century respectively.

Plate glass for mirrors, shop fronts, and decorative purposes, must be ground and polished. Crown glass was too thin for this purpose and often broke during grinding. Broad glass was often used, despite its limitations on plate sizes. At the end of the seventeenth and early in the eighteenth century, under royal patronage, French workers developed the casting process. This process was later adopted by the British Plate Glass Co., St Helens, in 1773. Hartley’s ‘Patent plate’ and ‘rolled sheet’ were developments of this basic casting process.

Figure 99. Engraved seals of the British glass manufactory, 1773, and of the British plate glass manufactory, 1797.
Dating of these products is even more difficult than for commercial and artistic glassware as there are few changes in appearance that result from the different techniques. The different methods are described below, in part to ensure an understanding of the terminology used and also to try and highlight the few differences between the products.

7.2 Window glass

7.2.1. Broad glass was described by Theophilus in the thirteenth century as a process for making glass plates for mediaeval church windows. It changed little over the centuries (Ref. 48). A heavy free-blown cylinder was opened up and flattened before placing it in an annealing furnace to cool slowly. Owing to the flattening process, the finished sheet did not have a bright fire-polished surface. The size was limited by the diameter and length of the blown cylinder to approximately 30 inches (750 mm). This method is still in use for small quantities of flat glass (Ref. 89).

7.2.2 Crown glass was preferred by Lorraine and Normandy glassmakers who founded many aspects of the British trade. From several successive gathers of glass on a blow-pipe, a flattened bulb was formed by variations of the free-blowing methods. (Fig. 100).

The re-heated glass shape was spun so rapidly on the pontil in front of the furnace (or specially heated ‘glory hole’) that, by centrifugal force, the glass was transformed into a thin disc (Ref. 56).

Figure 100. The Crown process in which the glass flattens by centrifugal force during rapid spinning.
A simpler variation of this process in which a flattened glass bulb was spun on the blow-pipe, rather than the pontil, was still in use by Chance Bros of Smethwick in the U.K. to produce flat optical glass discs (Crookes glass) in 1949 (Ref. 91).

Discs 4 feet to 4 feet 6 inches (1200-1400 mm) in diameter were made by the Crown method (Ref. 56). A typical cutting pattern used to avoid wastage, illustrated in Figure 101, clearly shows why Crown glass panes were usually approximately 16 inches (400 mm) or less in size with an extreme maximum length of the order of 20-24 inches (500-600 mm).

Figure 101. Typical cutting pattern of Crown glass to avoid wastage (in inches).

Throughout the early 1800s, the excise duties in Britain favoured the production of Crown rather than the Broad (flattened) glass. Indeed, in 1813 the only type of window glass exported from Britain was Crown glass (Ref. 48) on which an exceptionally severe manufacturing duty of thirteen pounds thirteen shillings and six pence per hundred weight was charged. A rebate of four pounds, eighteen shillings per hundred weight was granted on this duty for finished cut-up panes for export.

The duties were levied by weight, so there was a real commercial incentive to make the discs as thin as possible compatible with their use in windows. The thin Crown glass bore less duty, even allowing for wastage, than the thicker Broad (flattened) glass. The thickness of the Crown glass was limited to a maximum of ¾ inch (2.8 mm) by the Excise regulations (Ref. 48), but it is not uncommon to find small Crown glass panes 2 mm thick or less.
FLAT GLASS

When considering the likely use of such early thin glass artefacts, it should not be overlooked that the pressure to cause fracture increases as the size of the pane is reduced. Consequently, such small, thin panes, approximately 2 mm or less thick, would be nearly as practicable for windows as the much larger thicker (3-4 mm) panes adopted after c. 1835-65.

The bulk of window glass imported into Australia before 1834 was thin Crown glass from Britain, with severely limited pane sizes. Indeed, during the austere period of the Napoleonic wars, no window glass over 15 inches (380 mm) in size was reported in the *Sydney Gazette* (Fig. 103).

As a consequence of the method of manufacture and the influence of the Excise duties, Crown glass has the following characteristics:

* An originally smooth fire-finished surface.

* Curved striae and flow lines in the glass.

* The crown glass panes are not truly flat but have slightly concave/convex surfaces (Ref. 44).

* The pane is normally approximately 2 mm or less thick, with a maximum of 2.8 mm (‘11⁄4 inch).

* Normally the pane is less than 400 mm (16 inch) square, but extreme lengths up to 500-600 mm (20 - 24 inch) are possible.

7.2.3 **Improved flattened cylinder.** This process was developed in Britain in 1831 by Bontemps at Chance Bros Smethwick, Birmingham. Using several gathers of glass on a blow-pipe, a large heavy cylinder was formed (Ref. 89) by variations of traditional-blowing methods (Fig. 2), using a deep trench in which the heavy globe of hot glass was swung and stretched. The cylinder was cracked off the pipe (Fig. 102), allowed to cool, slit longitudinally with a hot iron rod or diamond cutter, and then re-heated in a flattening oven with a semi-cylindrical block of poplar wood on the end of a long rod (Ref. 89).

In 1831, Chance Bros of Birmingham realised that the rebate on exported Crown glass was available whatever the process of manufacture. They invested in this European flattened cylinder process with the additional flattening ovens and netted a substantial profit to pay for their investment before the excise authorities modified the rebate.

While there is evidence that they exported the poorer quality products to ‘protected British possessions’ (Ref. 48), presumably including Australia, Chance Bros made wider cylinders than those made by the original European Broad glass process and improved the colour of glass to compete with the small bright, fire-finished Crown glass panes.
Figure 102. Flattened cylinder method showing the processes of cracking-off, splitting and flattening.

The initial imports to Australia of this thicker glass from 1834 onwards followed these developments in Britain. For example, the Sydney Gazette reported: *Sheet window glass differs from Crown glass ... first it is half as thick again [i.e. 3.0-4.2 mm], second the colour is much better, thirdly it is flatter ... the best ever imported.* (S.G. 26.6.1834, p.3), *Chance and Hartley’s British Sheet Glass, which is much superior to Crown, being a third thicker [i.e. 2.8 - 3.8 mm], clear and cut.*’ (S.G. 10.9.1835, p. 4). This window and picture glass was available in a variety of sizes up to relatively square pieces 30 x 25 inches (i.e. 755 x 635 mm) or longer narrower pieces up to a maximum of 36 x 22 inches (i.e. 915 x 560 mm).

The thinner Crown continued to compete with the thicker flattened cylinder glass, even though there was by then a record that the thinner glass broke readily during Australian hailstorms. Governor Macquarie made a supplementary estimate for window glass in 1814 (HRA Series 1. Vol. 8, 28 May, p. 261) following a storm in Sydney. After another storm in Sydney, an advertisement in the 1847 *Sydney Morning Herald* advised customers to use the thicker British glass and avoid the evil results that attended the use of common glass (S.G. 24.2.1847, p. 1).

Specimens, presumably of Crown glass, of a standard window size of 254 x 303 mm (10 x 12 inches), but of very poor quality only 1.5 mm (0.06 inch) thick, were found on the wreck of the *James Mathews* in 1841; and again pieces presumably of Crown 2.5 mm (1/10 inch) thick and plate 5 mm (1/5 inch) thick, appeared on the 1852 wreck of the *Eglinton* (Refs 84,85). By 1860 Crown glass was evidently becoming scarce, though it was still appreciated probably for its fire-polished appearance. A glazier advertised: ‘CROWN GLASS and PATENTED PLATE WANTED, sizes 22 x 21 [inches], a larger size not objected to.’ (S.H. 10.1.1860, p. 8).
There was only one mention of the import of Crown glass in the following two months of the 1860 *Sydney Morning Herald*. Nevertheless, Crown was still being specified for painters and glaziers government contract schedules in 1864 in sizes up to 500 x 440 mm (20 x 16 inches) (Ref. 88).

Although Crown glass survived much longer in Britain (and evidently also in Australia) than in Europe, its use finally declined in the 1860s (Ref. 48) as other methods such as thick 'patent' plate and flattened cylinder glass grew in importance.

It is evident from the sizes of glass panes advertised in papers at the time that the flattened cylinder glass, first introduced in 1834-5, gradually replaced Crown glass with the largest sizes ranging between 3 feet 6 inches and 4 feet (1067 x 1219 mm) by 1860 (Fig. 103). Corresponding changes would be anticipated in the maximum window sizes of dwellings during that period.

![Graph showing the maximum dimensions of window glass advertised in the Sydney Gazette 1804-40 and Sydney Morning Herald 1840-60.](image)

**Figure 103.** Graph showing the maximum dimensions of window glass advertised in the *Sydney Gazette* 1804-40 and *Sydney Morning Herald* 1840-60.
Chance Bros continued to develop this process for special optical glasses right up to c. 1950 and in fact, still used the original French terms introduced by Bontemps in 1831 for much of their equipment (Ref. 91). Figure 104 provides some concept of the five-foot heavy-nosed blow-pipe, weight of glass gathered in excess of fifty-pounds (approximately 25 kg), methods of support during manipulation over a trench, and the press button (P) control of the blowing air, eventually used by this company. Cylinders up to 1300-1800 mm (50-70 inches) long and 300-500 mm (12-20 inches) wide were eventually possible by this process.

Figure 104. Sketch illustrating final form of improved flattened cylinder process.

7.2.4. **Lubbers machine cylinder.** This process patented in 1896 was brought to commercial production in 1905 by the American Window Glass Co. and used in Britain by Pilkington Bros between 1910 and 1933. Cylinders produced by this process were over 7.5 m (25 feet) long and 530-600 mm (21-24 inches) in diameter (Ref. 45). Thus, pane widths up to 1800 mm (6 feet) were possible in Australia by c. 1910.
7.2.5 **Continuous drawing process.** This process was first introduced by the Belgian Fourcault in 1914 but only brought into more general use after 1918 (Ref. 24).
In this method, the glass is forced to emerge from a shaped slit in a partially submerged fireclay boat, (the debiteuse) and continuously drawn up through water-cooled rollers.

Drawing equipment, similar in principle, was later devised by Colburn in the U.S.A. and, without using a debiteuse, by the Pittsburgh Plate Glass Co. For many normal sheet glass thicknesses, these methods increased the maximum pane widths still further to between 1.8-3.0 m (6-10 feet).

7.3 Plate glass

The second form of flat glass is called plate glass. For many purposes it must be ground and polished.

7.3.1 Cast and rolled plate. Small pieces of cast plate were made from time to time by the Romans, Venetians and others. The modern development in Europe dates from 1676-88, when, under royal patronage, a monopoly was granted to several Frenchmen to manufacture and export cast plate glass. By 1691 satisfactory thick plates over 1.8 m (6 feet) long were produced. By 1725 St Gobain produced 711 tonnes (700 tons) and by 1760 about 1168 tonnes (1150 tons) of plate glass per year.

The glass, melted in large pots, was ladled into smaller ‘cuvettes’ and from these cast (poured) and rolled on a metal table (Fig. 99 b). Any excess hot glass went into the water trough at the end of the table which itself was cleaned with a water-soaked wooden tool, shown on the floor in the figure, between each cast. The rolled plates, up to 4000 x 750 mm (160 x 30 inches) in size, were annealed, ground by hand with fine grades of sand and powdered glass and finally hand-polished with powdered ‘rotten stone’ and rouge applied with a felt roller!

Such a laborious and expensive process, involving extensive melting, annealing and grinding equipment, was only established in Britain at St Helens on the South Lancashire coalfields in the period 1773-92 (Ref. 43). By the 1860s three firms in this area produced over two-thirds of Britain’s plate glass. Pilkingtons, the surviving company, achieved a monopoly in this field by 1910.

Mirrors (‘Looking glasses’) made from plate glass, were imported and auctioned in early Sydney. The Sydney Gazette of 1803 advertises:

‘Selling off, ... at the House lately occupied by G. Croffley, Looking-glasses, Capital square, pillared and oval best French plate looking glasses, beautifully gilt and ornamented, of different sizes.’
(S.G. 15.5.1803, p. 3).
‘Mr. Lord selling ... part of the household furniture of Mrs. Reibey, who is moving from her present residence ... a pier glass 5 feet x 2 feet 6 inches [1524 x 762 mm] ... ’ (S.G. 9.1.1826, p. 3)

As would be expected, many early examples were of French origin and there was no practical limitation on the sizes for normal household use with imports or sales up to 1.7 m (5 feet 6 inches) in length being recorded before 1830. Such rolled plate was normally between 3-6 mm (1/8-1/4 inches) as it is today, but there was no definite limit in size.

Prior to 1840 such mirrors were made by means of a process which employed an amalgam of tin and mercury (Ref. 49), first used in Venice in 1317. This was replaced in the early 1840’s by a process of deposition of silver from a warm solution of silver nitrate in distilled water, to which a reducing agent, such as Rachelle salt (a sodium-potassium tartarate) was added. R.J. Stone appears to have been the first to set up shop, initially at the Kings Arms in Sydney (S.H. 19.10.1843, p.3) as a glass polisher and silverser, and many mirrors from c. 1845 onwards would be identifiable by being silvered.

7.3.2 Patent plate. During the 1840s James Hartley of Sunderland produced thin cast rolled plate, using direct ladling of the glass from the melting pot in the furnace on to the casting chamber, thus eliminating the intermediate stage of refining and transfer in a cuvette. Hartley’s ‘Patent’ plate, with a minimum thickness of about 3 mm (1/8 inch) was often made of coloured glass and impressed on one side with patterns. The glass sheets were left unpolished for many purposes such as skylights, roof glass and church windows. Along with Chance Bros products, Hartley’s glass was continuously advertised from 1835 onwards. Crimson, purple, green, blue, yellow and amber stained glass was also imported in this period (S.H. 2.9.1842, p.1).

Frosted glass was also advertised at that time (S.G. 28.4.1838, p.3), but it was probably referring to glass surfaces dulled by rough abrasion with sand or to roughly cast glass with an ‘obscured’ surface. The more modern form of frosted glass followed from British patent No. 1489 to C.D. Gardissal in 1856. In this patent the glass was etched with white acid (a mixture of hydrofluoric acid with soda or ammonium carbonate). The remainder of the glass was protected with a ‘resist’ made from mixtures containing carbon black, resin varnish and red lead. This form of frosted decoration was used extensively on free-blown tableware particularly by Richardson and Northwood in Stourbridge (Refs 49, 82). The difference between obscured glass surfaces made respectively by rough casting, abrasion and etching are identifiable by inspection, but would be clear from electron micrographs as abraded surfaces have numerous microcracks.

Crown and flattened cylinder glass were both just below or above 3 mm thick and were therefore difficult to grind and polish without fracture.
Chance Bros met this difficulty at the time by making a smaller but thicker Crown disc (Fig. 100) and then selling it as Patent thick crown presumably about 3-4 mm thick.

In 1838, J.T. Chance finally overcame the difficulties in grinding and polishing by placing the sheets on slate beds covered with water-soaked leather. By 1845, Chance's 'Patent' plate, which was evidently midway in thickness between Crown (approximately 2.5 mm), and ordinary plate (approximately 4-5 mm), was in great demand for coach windows, mirrors and pictures.

7.3.3 Rolled sheet. In 1884, Mason and Conqueror patented a machine in which the glass was poured down an inclined plane and passed between a pair of rollers. This process was not brought to a commercial success. However, in 1887 Chance Bros devised a machine for rolling and also introduced wired rolled sheet in 1905 in which an iron-nickel alloy wire mesh was embedded in the glass sheet. The methods of Mason and Conqueror were made successful in the early 1920s in the Bicheroux process (Fig. 107).

Figure 107. The Bicheroux process. Sketch from unlabelled patent specification.
These melting, rolling, grinding and polishing processes were eventually made completely continuous in the 1920-40 period in huge plants each about half a mile long by companies such as Ford in the U.S.A., Pilkingtons in Britain and St Gobain in Europe.

7.3.4 Float glass. In 1959 Pilkingtons introduced the revolutionary Float glass process in which a stream of molten glass flows on-to, and floats on, a bath of molten tin in an oxygen free atmosphere, so producing an optically flat sheet (on both sides). This process combined the advantages of drawn sheet, which always has a slight distorting surface ‘wave’ and truly flat polished plate glass. It also eliminated entirely the costly grinding and polishing processes. This type of glass is identifiable by the very slight deposit of tin on one surface which is visible under a microscope.

Since 1970 a variety of coloured and solar-protecting flat glasses have been developed by Pilkingtons from the basic Float process using electro-chemical migration of added colouring ions from the molten tin into the setting flat glass.

The standard thicknesses of modern drawn sheet, polished plate or float glass and their approximate weights per unit area are available in standard texts (Refs 71, 75). It is apparent that the maximum dimensions of sheet by these continuous processes rose beyond 2.5-3 metres (100 inches).

![Graph](image)

Figure 108. Weight per unit area of flat glass of varying thickness.
7.4 Identification and dating

The common feature of all these flat glass products is the difficulty of differentiating between them, even in large sheets, by casual inspection. From the preceding historical outline, it will be evident that, providing there is other supporting evidence on site, some guidance on dating and identification may be obtained from the following features:

7.4.1 Thickness. Thicknesses of glass to be expected from the different processes have been summarised in Table 6 together with the approximate dates of their introduction into Australia. Thicknesses can be measured by vernier calipers or alternatively by measurement of the area of the sheet, the normal weight per unit area curve given in Figure 101 or the fact that the glass normally has an approximate density of 2.5 g/mL.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>PERIOD</th>
<th>THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crown</td>
<td>Up to c. 1870</td>
<td>Below 2.8mm ((\frac{1}{8}) inch)</td>
</tr>
<tr>
<td>Broad &amp; flattened</td>
<td>Up to c. 1910</td>
<td>3-4mm ((\frac{1}{6}-\frac{1}{2}) inch)</td>
</tr>
<tr>
<td>cylinder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hartley's patent</td>
<td>After c. 1840</td>
<td>3-4.5mm ((\frac{1}{8}-\frac{1}{16}) inch)</td>
</tr>
<tr>
<td>plate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chances patent</td>
<td>After c. 1840</td>
<td>3-4mm ((\frac{1}{8}-\frac{1}{2}) inch)</td>
</tr>
<tr>
<td>plate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubbers cylinder</td>
<td>After 1905</td>
<td>3-4mm ((\frac{1}{8}-\frac{1}{2}) inch)</td>
</tr>
<tr>
<td>Rolled sheet</td>
<td>After 1890</td>
<td>Above 4.5mm ((\frac{3}{16}) inch)</td>
</tr>
<tr>
<td>Wire rolled sheet</td>
<td>After 1905</td>
<td>Above 4.5mm ((\frac{3}{16}) inch)</td>
</tr>
<tr>
<td>Drawn sheet</td>
<td>After 1920</td>
<td>Up to 6mm ((\frac{1}{4}) inch)</td>
</tr>
<tr>
<td>Float glass</td>
<td>After 1960</td>
<td>Up to 6mm ((\frac{1}{4}) inch)</td>
</tr>
<tr>
<td>Cast &amp; rolled plate</td>
<td>Throughout</td>
<td>Usually to 32mm (1(\frac{1}{4}) inch)</td>
</tr>
</tbody>
</table>

Table 6. Approximate thicknesses of different forms of flat glass.

7.4.2 Other guides. Other guides to dating flat glass are:

* The increased import of coloured glass and surface impressed patterns in Patent plate (3-4 mm) from Hartley's in London in the 1840s.

* The introduction of similar patterns which gave rise to the 'figured rolled sheet' (usually 5 mm) in the 1890s.

* The silvering of mirrors after the 1840s.
* In buildings, the rise in the size of windows possible between c. 1840 and 1870 (Fig. 103).

* Toughening of glass (e.g. for car windows) which can produce blunt-edged shattered pieces (4-5 mm) from the 1930s on (Appendix 4).

* The introduction of float glass into Australia in the 1970s.

7.4.3 Surface characteristics. Direct visual inspection of the different forms of flat glass is not often very informative. However, it is possible to differentiate between truly flat polished plate and other forms of window glass which slightly distort vision. Nevertheless, some surface differences must exist on a microscopic or submicroscopic scale between ground and polished, flattened, rolled, spun and drawn flat glass. Suitable forms of lighting for surface inspection of glassware are described by A. J. Holland (Ref. 14).

As far back as 1934, F.H. Zsacke recorded some differences resulting from the etching of glass surfaces with a solution of diluted hydrofluoric acid (10 parts), sulphuric acid (5 parts) with 100 parts of water for periods of 10-60 minutes (Ref. 36). Briefly, the surface differences he recorded were:

* Broad glass, flattened cylinder and Lubbers glass. There will be irregular distortion of an object viewed through it or by reflection. The surface which has been in contact with the stone table during flattening is uniformly dull and covered with fine holes on etching.

* Drawn glass. The distortion, particularly by reflection, takes the form of waves or lines parallel to the direction of drawing. Similar lines are formed on etching.

* Ground and polished plate shows a network of fine lines after etching, due to the remains of fine cracks formed during grinding.

* Rolled sheet has a slightly rippled surface due to the effect of the rollers.

* Initially, the Crown glass surface will be fire-finished and relatively free of surface markings.

Clearly, these laboratory methods are not usually feasible on site. The reflection and distortion effects are only visible on a reasonably large pane. Scuffing during burial may well affect both the corrosion that takes place over a long period and any etching results in the laboratory. The recent work on the interpretation of layering and accelerated pitting of Roman, Mediaeval and modern glass by R.G. Newton in particular, does suggest that this field warrants further investigation (Ref. 25).
8.0 SUMMARY OF CRITERIA FOR DATING COMMON BLACK AND FLINT GLASS BOTTLES

The following summary of the findings in this Research Study by the Heritage Council is along the lines of a brief summary presented at the International Ceramics Conference held in Sydney between August 21st and 26th, 1988 and published in Materials Science Forum, Volumes 34 - 36, 1988, pp1105 - 1109.

The identification and dating of glass artefacts from Australian sites can contribute to our knowledge of the period of occupation and extend our appreciation of the social and commercial background. The European occupation of Australia is so recent that the development is often well-documented from the official records (Ref. 2) and early newspapers. The styles and shapes of tableware (Refs 55, 78) and bottles (Refs 22, 26, 30) from early wrecks (Refs 84, 85, 86), historic sites and collectors have been assessed in relation to such documentary evidence. The sales and imports reported in early copies of the Sydney Gazette and the Sydney Morning Herald proved particularly useful.

8.1 Effects of British glass tax

The major source of early imports, before local manufacture commenced by Ross in Sydney (1866) and Grimwade in Melbourne (1872), was from Britain. The tax on all British glass between 1746 and 1845 and the rigid laws, regulations and excise rates associated with the tax caused almost a complete separation of the highly taxed clear ‘flint’ from the lower taxed common ‘black’ glass trades (Refs 28, 32). Effectively, the manufacturers were not able to make both types of glass in the one factory or make small bottles under six-fluid ounces (170 mL) in ‘black’ glass. Engraved metal moulds and more complex moulding techniques were both adopted earlier for ‘flint’ than for ‘black’ glass bottles. Water-soaked wooden tools and moulds remained in use for large traditionally blown ‘black’ bottles until as late as 1860-70. In consequence, the dating of these two types of glass artefacts has to be assessed separately.

8.2 Common ‘black’ glass bottles

The major identifiable changes in the appearance of large common ‘black’ glass bottles, used mainly for wine and beer, are well-documented (Refs 22, 26). Dated Australian examples (Refs 84, 85, 86) conform to these findings which are as follows:

8.2.1 Shaping methods:

<table>
<thead>
<tr>
<th>Method</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional blowing</td>
<td>Before 1820-40</td>
</tr>
<tr>
<td>Traditional blowing + 3-piece moulding</td>
<td>1820-40 – 1900-20</td>
</tr>
<tr>
<td>Turning in wooden moulds</td>
<td>Some before 1880</td>
</tr>
<tr>
<td>Turning in paste-moulds</td>
<td>After 1880</td>
</tr>
<tr>
<td>2-piece moulding with base-plates</td>
<td>After 1900-20</td>
</tr>
</tbody>
</table>

Table 7. Summary of dates of shaping methods for common ‘black’ glass bottles.
SUMMARY OF DATING CRITERIA

Traditionally blown bottles are identified by the absence of mould seams, the horizontal join under the applied finish and an asymmetrical shape. The bulging of the base corner in British bottles was eliminated by 1820-30 (Ref. 17). Two main types of ‘black’ bottles occur: the low shouldered wide ‘beer’ shape and the taller high-shouldered ‘wine’ shape (Ref. 26). Up to 1800-20 the Imperial Quart (1140 mL, 40 fl oz.), Queen Ann Wine Quart (940 mL, 33 fl oz.) and the Reputed Quart (758 mL, 26\(^{3/4}\) fl oz.) were all in use side by side (Ref. 22). Gradually the Reputed Quart was adopted (SG 22.3.1817, p. 4) (Ref. 22) and recognised legally as one-sixth of the new Imperial gallon in 1824 (Ref. 22). Long narrow bottles with sloping shoulders, the so-called ‘Hock’ type, were imported after 1840-45 (SH 19.9.1843, p. 3).

Three-piece moulded bottles are identified by one circular and two vertical seams on the shoulder. Turn marks identify turn-moulded glassware. Except for Ricketts type moulded bottles from 1821 onwards (H. Ricketts British Patent 4623, 1821) (Ref. 17), embossed lettering and designs only occur on the shoulder until complex two-piece machine-moulded bottles permitted embossing on the body after 1910-20.

8.2.2 Push-ups and pontil marks:

- Conical push-up (rounded apex) + open pontil mark up to 30 mm diam. Up to c. 1750 for British bottles
- Dome-shaped push-up + sand-pontil mark up to 40-70 mm diam.\(^1\) 1720-50 – 1850-70
- Conical push-up - ridges round push-up and base from capped or uncapped wooden tools.\(^2\) 1820-40 – 1860-70
- Rickett’s push-up.\(^3\) 1820-30 – 1850-70
- As above without pontil mark 1830-70 – 1900-20
- Ring-pontils usually in non-British wine, champagne and case bottles Up to c. 1850-60
- No pontil marks due to the use of holders After c. 1830-70

\(^1\) Centre of push-up may be distorted by circular or quatrefoil impression caused by push-up rod.

\(^2\) A central mamelon shape is often due also to a valve or pusher in three-piece moulding.

\(^3\) Rickett’s push-up (Ref. 17) gives embossed name between circular seams round the pontil.

Table 8. Summary of dates for push-up types for common ‘black’ glass bottles.
Thus the shape of the push-up, the appearance (or absence) of a pontil mark and the location of push-up tool marks or base-plate seams, all form useful guides to age.

8.2.3 Forms of finish

<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single collar below cracked-off lip</td>
<td>Before c. 1700-20</td>
</tr>
<tr>
<td>Single collar to reinforce lip developed</td>
<td>During c. 1720-80</td>
</tr>
<tr>
<td>Double stringing &amp; reinforcing collars developed</td>
<td>During c. 1780-1820</td>
</tr>
<tr>
<td>Double collars lengthened to approx. 25 mm</td>
<td>1820-40 – 1900-20</td>
</tr>
<tr>
<td>Foil-covered single collar turn-moulded by finishing tools after 1840-50 (SH 20.1.1843, p.3 &amp; 10.11.1843, p.3)</td>
<td>1840-50 – 1900-20</td>
</tr>
<tr>
<td>As above machine-made</td>
<td>1900-20 to date</td>
</tr>
<tr>
<td>Perry-Davis machine-made double collar</td>
<td>1900-20 to date</td>
</tr>
</tbody>
</table>

Table 9. Summary of dates of forms of finish for common ‘black’ glass bottles.

The main identifying features of the finish of a traditionally blown or moulded bottle are the horizontal join under the applied finish and any surface tooling. Machine-made bottles do not possess these features but have finish-mould seams. Turn marks distinguish finish-moulded bottles after c. 1840-50.

8.3 Clear ‘flint’ and pale-green bottles

Simple two-piece moulding with embossing (Refs 27, 29) and two-piece moulding with base-plates (Ref. 17) were adopted for the highly taxed flint and pale-green bottles as early as c. 1750 and c. 1820-40 respectively. Other differing developments from ‘black’ glass are:

8.3.1 Shaping methods

The major identifying features are: Simple two-piece moulded bottles have a diagonal seam across the base. Embossing increased after the development of easily engraved mild steel in 1860. Two-piece moulding with post or cup-bottom plates are identified by circular seams in the base or heel respectively. Machine-made bottles are identified by the presence of finish, base-plate and vertical blow-mould and ghost parison seams. Suction type bottles also have a shear scar in the base.
SUMMARY OF DATING CRITERIA

Traditional blowing and turn-moulding
c.e.g. for Apothecaries' bottles and show
globes. Up to c. 1900-20

Two-piece moulding and embossing. 1750-80 – 1900-20

Two-piece moulding + use of
bottom-plate. 1820-40 to date

Three-piece moulding for round bottles. 1820-40 – 1900-20

Machine-made wide-mouth Press and Blow. After c. 1895

Machine-made narrow-mouth Blow and Blow. After c. 1900-20

Machine-made narrow-mouth Suction. After c. 1910-20

Table 10. Summary of the dates of shaping methods for clear 'flint' and pale-green bottles.

The diverse changes in style and shape of flint glass bottles, such as
mustard squares (1821), octagonal and square pickles (1835), ovate
soda-water (1834), cylindrical Maugham type (1845), plug (1870) and
marble-sealed (1875) soft drinks, plate-moulded medical flats (1880) and
pressed-and-blown fruit bottling jars (1890) etc. can all provide useful
dating criteria.

8.3.2 Push-ups and pontil marks. The use of improved empontilling
techniques appears to have been more widespread for 'flint' glass and
often 10-20 years earlier than for large 'black' bottles:

Pointed push-ups in small phials and oil
bottles. Before c. 1800

Conical push-up (rounded apex) + open
pontil mark up to 30 mm diam. Before 1830-60

Bare iron pontil marks Between c. 1845-70

Ring pontil marks (in flasks & medical
bottles particularly). Before c. 1850-60

No pontil marks due to use of holders. After c. 1835-70

Table 11. Summary of dates of push-ups and pontil marks for clear 'flint' and pale-green
bottles.
Bare iron pontils sometimes show reddish/black ferrous/ferric oxide deposits in the circular depression formed by the iron rod; a feature shared with metal-capped wooden push-up pontil marks in ‘flint’ and ‘black’ bottles. The ring-pontil leaves undisturbed any mould seams or embossed lettering inside or outside the ring.

8.3.3 **Forms of finish.** The diverse forms of finish, mouth, bore, internal ledges, grooves and plugs in flint glass bottles often provide detailed and sometimes quite precise information on their age, particularly after 1860-70 when many patented closures were introduced (Refs 30, 54). A summarised assessment of the period of use in Australia of a selection of the main types is as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Date Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cracked-off or burst top</td>
<td>1600-50 – 1910-20</td>
</tr>
<tr>
<td>Flared lip</td>
<td>1600-50 – 1910-20</td>
</tr>
<tr>
<td>Flared lip with pewter or other metal cap</td>
<td>1600-50 – 1910-20</td>
</tr>
<tr>
<td>Ground glass stopper</td>
<td>1700-50 to date</td>
</tr>
<tr>
<td>Single applied or machine-made collar</td>
<td>1720-80 to date</td>
</tr>
<tr>
<td>Double stringing &amp; reinforcing collars</td>
<td>1780-1820 to date</td>
</tr>
<tr>
<td>Foil-covered single collar</td>
<td>1840-50 to date</td>
</tr>
<tr>
<td>Spherical (‘blob top’) collar</td>
<td>1860-70 – 1900-20</td>
</tr>
<tr>
<td>Barrett (Hogben) long plug</td>
<td>1870-72 – 1900-05</td>
</tr>
<tr>
<td>Lamont/Valet type plug</td>
<td>1870-75 – 1905-10</td>
</tr>
<tr>
<td>Original Codd (marble)</td>
<td>1873-75 – 1885-95</td>
</tr>
<tr>
<td>Codd variants (marble)</td>
<td>1880-85 – 1930-35</td>
</tr>
<tr>
<td>Coloured finishes on Codd type</td>
<td>1890-95 – 1905-10</td>
</tr>
<tr>
<td>Gledhill (rubber ball)</td>
<td>1875-80 – 1890-95</td>
</tr>
<tr>
<td>Hutchinson plug</td>
<td>1885-90 – 1905-10</td>
</tr>
<tr>
<td>Swing (Lightening) type stopper</td>
<td>1875-80 – 1945-55</td>
</tr>
<tr>
<td>Crown-cork</td>
<td>1895-1900 to date</td>
</tr>
<tr>
<td>Internal screw</td>
<td>1880-85 to date</td>
</tr>
<tr>
<td>External screw</td>
<td>1885-90 to date</td>
</tr>
</tbody>
</table>

**Table 12.** Summary of dates of forms of finish for clear ‘flint’ and pale-green glass.

Dates before 1788 refer to bottles on early wrecks. Dates after c. 1910/20 usually imply a machine-made finish.
8.4 Some Technical implications.

The survey has shown the need for a detailed assessment (and 'library' of examples) of the different shaping methods, push-up shapes, tool and pontil marks and forms of finish, for bottles from wrecks and dated sites. Dating bottles by these means requires the differentiation between tool marks (initially folds in the hot viscous glass) and mould seams. Inspection by suitable lighting, inside or outside the bottle, or of the shadows so formed, is useful (Ref. 14). The broken glass pieces with mould seams on a site may be a useful guide. For 20 mm square pieces the frequency of occurrence should be of the order of 1 in 6, or 12, or 25, for 2-piece, 3-piece and dip moulding respectively.
LIST OF TERMS

This preferred List of Terms is provided to clarify some of the variations in nomenclature and meaning which exist in the terms presently used by glass manufacturers, archaeologists and collectors. Although primarily adopted to achieve consistency in the text, it should be considered as a first attempt to standardise these terms.

Added glass  See: Collar and Finish.

Aerated  Less preferred term for carbonated. See: Carbonated.

Amber  A transparent golden brown colour common in beer and wine bottles.

Anchoring  Tying down a cork with wire or string. See also: Collar.

Annealing  The slow controlled cooling of newly formed glass, normally from 550-600°C to room temperature.

Apothecary  Old name for pharmacist or chemist.

Applied lip  See: Collar and Finish.

Automatic  Where the hot glass passes automatically to the bottle making machine and the bottle is completely formed on a continuously operating machine.

Baffle-plate  Part of the parison mould assembly (Figs 93, 94, 95) which shapes the half-formed bottle and produces a baffle seam, usually circular, in the base of the finished machine-made bottle.

Base-plate  Part of the final blow-mould assembly (Figs 93, 94, 95) which shapes the finished bottle or jar. It produces a base-plate seam, usually circular, in the base ("post-bottomed") or heel ("cup-bottomed") of the bottle (Fig. 38a, c).

Black  The dark-green colour, due to iron oxide, darkened considerably by deep amber (caused by carbonaceous impurities) in many early beer and wine bottles. For convenience, the term used here is a generalisation rather than as a specific indication of colour.

Blank  Less preferred term for parison. Blank is used extensively in the automated bottle making industry. See: Parison.

Blister  Large bubble of gas or air trapped in molten glass.

Block mould  Less preferred term for cup mould. See: Cup mould.

Blow-blow  The two stage method of making a bottle by forming a half-blown parison shape, allowing the chilled surface of the glass to re-heat, and blowing the final shape in the blow-mould (Figs 93, 94).

Blow-mould  The wooden or metal mould pieces used to form the final shape. (Figs 33-42). Forms blow-mould seams.
LIST OF TERMS

Blow-pipe A hollow iron tube with mouth-piece - usually approximately 13-38 mm (½-1½ inches) in diameter and from about 0.9 m (3 feet) upwards in length. The tube is thicker and wider at the end on which the molten glass is gathered and blown.


Bore The narrowest part of the inner surface of the neck of a bottle through which the filling tube, usually 12.7 mm (½ inch) diameter, must pass freely. Consequently, many bottles have a bore of approximately 19 mm (¾ inch).

Bottom-plate Less preferred term for base-plate. See: Base-plate.

Broad glass Flat glass made by an early method of flattening a split, free-blown cylinder.

Carbonated Term used to describe liquids, such as soft drinks, that have been impregnated with carbon dioxide gas under pressure.

Cast glass Flat glass that has been formed by pouring hot, viscous glass onto a heavy metal table (i.e. cast) prior to rolling it to form cast glass (Figs 99, 107). See: Rolled Glass.

Closure Device used to enclose or seal the contents of a bottle or jar, e.g. a stopper, cork or lid.

Codd Used to describe various forms of soft drink bottle in which the main feature is a glass marble stopper. The marble is held in position by gas pressure against a hard rubber washer in the bore. The original type was patented by Hiram Codd in 1870.

Cold mould marks Wavy, irregular markings caused by blowing hot glass into cold moulds. The marks may be associated incorrectly with the grain in wooden moulds (Fig. 98).

Collar Used to describe two distinct parts of a bottle top - firstly the anchoring or holding collar (often called a string-rim) on which the cork is wired (Figs 4, 20, 55-58); and secondly, any reinforcing glass collar used to strengthen the neck or lip, minimise cracking or leakage, or protect the skirt of a bottle cap. Either one or both collars may form the whole finish. It may be formed traditionally using additional hot glass (Fig. 4), and hence is often described by the less preferred term applied lip, or it can be formed by pressing and moulding at the beginning of a machine-made process (Figs 93-95).

Cradling tool Less preferred term for holding tool. However, some designs of this tool can also be used to carry, as well as hold, hot glass articles. See: Holding tool.

Crown-cork A form of bottle closure (Fig. 65).

Crown finish Finish shape used with crown-cork cap (Fig. 65).

Crown glass Early form of window glass flattened by rapid spinning (Fig. 100).
**LIST OF TERMS**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystal glass</td>
<td>Brilliantly reflecting glass with a high refractive index. The term usually refers to glass containing high proportions of lead and/or barium oxides.</td>
</tr>
<tr>
<td>Cup-bottomed</td>
<td>Shape of a base-plate in the blow-mould assembly (Fig. 38c).</td>
</tr>
<tr>
<td>Cup mould</td>
<td>Wooden cup mould, usually of beech or pear wood, used to shape or ‘block’ glass (Fig. 5i).</td>
</tr>
<tr>
<td>Cut glass</td>
<td>Glass decorated by cutting, using wet, rapidly spinning grinding wheels or diamond impregnated wheels (Fig. 90).</td>
</tr>
<tr>
<td>Density</td>
<td>See: Specific Gravity</td>
</tr>
<tr>
<td>Dip mould</td>
<td>Solid, internally tapered mould which allows the hot glass shape to be lifted out vertically (Fig. 33).</td>
</tr>
<tr>
<td>Drawing</td>
<td>The stretching of hot viscous glass sheet or rod; e.g. drawn sheet glass (Fig. 106) or drawn glass tubing.</td>
</tr>
<tr>
<td>Embossing</td>
<td>Moulding in relief so that designs stand out on the surface of the glass.</td>
</tr>
<tr>
<td>Engraving</td>
<td>Inscribing the surface of the glass with small abrasive and cutting wheels to form shallow surface decoration.</td>
</tr>
<tr>
<td>Etching</td>
<td>Decoration of patterns (previously inscribed through a wax resist on the glass surface) by corrosion of the glass using acid fluoride mixtures.</td>
</tr>
<tr>
<td>Feeding</td>
<td>Process of placing or directing hot glass into a forming machine either by hand-gathering or by an automatic feeder.</td>
</tr>
<tr>
<td>Finish</td>
<td>The whole of the additional glass finally applied to the cracked-off top to 'finish' a bottle in the traditional process (Fig. 4). The term is still used for the same part of the bottle top, moulded in the modern machine-made process. In the latter process the finish is moulded at the outset in the small finish mould (sometimes called a neck-ring mould), which is part of the parison mould assembly (Figs 93, 94, 95). It consists of the glass above the finish-mould seam and may have a holding or reinforcing collar or collars, an external screw thread or other design. See also: Collar, Finish-mould, Neck-ring mould.</td>
</tr>
<tr>
<td>Finish-mould</td>
<td>Part of mould assembly forming the finish. See: Finish.</td>
</tr>
<tr>
<td>Fire-finished</td>
<td>Glass that has been heated and cooled, usually in a flame, to give a naturally smooth, highly reflective surface.</td>
</tr>
<tr>
<td>Fire-polished</td>
<td>Alternative term for fire-finished. See: Fire-finished.</td>
</tr>
<tr>
<td>Flat glass</td>
<td>General term for Plate, Sheet and Float glass.</td>
</tr>
<tr>
<td>Flattened cylinder</td>
<td>Alternative term for the early, predominantly European Broad glass. An improved form of this flattened cylinder glass, with larger and thicker panes, was later imported into Australia from Britain after 1835. See: Fig. 102.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Float glass</td>
<td>Glass that is truly flat on both sides and has been formed by the modern method of floating it on a bath of molten tin in an oxygen free atmosphere.</td>
</tr>
<tr>
<td>Flint</td>
<td>Describes high quality, clear glass. The term was derived from the original use of washed flints rather than sand, in melting. In optical and tableware manufacture, the term usually implies a lead crystal glass.</td>
</tr>
<tr>
<td>Forming</td>
<td>Moulding and/or manipulating of a glass shape.</td>
</tr>
<tr>
<td>Frosted</td>
<td>Matt surface on glass produced by fluoride acid etching.</td>
</tr>
<tr>
<td>Free-blown</td>
<td>Glassware blown using a blowing iron and shaped by traditional methods (Fig. 2), <em>without the use of a final mould</em>. In its strictest sense this term is used for glass freely blown in air without the contact of any tools or moulding surface.</td>
</tr>
<tr>
<td>Gathering</td>
<td>The taking up of molten glass on a blow-pipe or iron by rotating its thickened end just below the hot glass surface.</td>
</tr>
<tr>
<td>Ghost seams</td>
<td>The adjacent double mould seams from the parison mould and from the final blow mould in machine-made bottles (Fig. 97).</td>
</tr>
<tr>
<td>Glass-tipped pontil</td>
<td>A pontil rod that has been dipped into hot glass. Also used to describe the mark it leaves on the base of a bottle. See: Less preferred terms Open pontil and Plain Pontil.</td>
</tr>
<tr>
<td>Heel</td>
<td>The area near the corner of the base and sides of the bottle.</td>
</tr>
<tr>
<td>Holding tool</td>
<td>Tool used in place of a pontil to hold and usually rotate glassware while applying additional hot glass (Fig. 30).</td>
</tr>
<tr>
<td>Iridescence</td>
<td>Rainbow-like reflections on the surface of the glass caused by corrosion, either by water during weathering or in decorative processes, by the attack of metal vapours.</td>
</tr>
<tr>
<td>Join</td>
<td>The area where initially separate pieces of hot glass meet and adhere.</td>
</tr>
<tr>
<td>Kick-up</td>
<td>Less preferred term for push-up. See: Push-up.</td>
</tr>
<tr>
<td>Layering</td>
<td>Long term weathering (corrosion) resulting in layers of slightly different composition and reflecting ability.</td>
</tr>
<tr>
<td>Leer</td>
<td>Less preferred older term for lehr. See: Lehr.</td>
</tr>
<tr>
<td>Lehr</td>
<td>A long tunnel-like annealing oven through which hot, finished glassware passes.</td>
</tr>
<tr>
<td>Lip</td>
<td>Either the upper, usually rounded, edge or the shaped pouring lip of a vessel. Bottle collectors also use the less preferred term applied-lip for the whole of the additional finish and collars in traditionally formed bottles. See: Collar and Finish.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Mallet</td>
<td>Common bottle shape used between c. 1730 and c. 1800 (Fig. 20 h-j).</td>
</tr>
<tr>
<td>Mamelon</td>
<td>A teat like protuberance in the centre of the base of a bottle.</td>
</tr>
<tr>
<td>Marble-bottle</td>
<td>Less preferred term for Codd bottle. See: Codd.</td>
</tr>
<tr>
<td>Marvering</td>
<td>Rolling and shaping hot glass on a smooth metal or stone table called the marver (Fig. 2b).</td>
</tr>
<tr>
<td>Moil</td>
<td>Less preferred term for moyle. See: Moyle.</td>
</tr>
<tr>
<td>Mould-mark</td>
<td>Alternative term for mould seam. See: Seam.</td>
</tr>
<tr>
<td>Mouth</td>
<td>The upper opening at the top of a bottle or jar.</td>
</tr>
<tr>
<td>Moyle</td>
<td>The surplus glass adhering to the blow-pipe after the shaped glass has been cracked-off.</td>
</tr>
<tr>
<td>Necking</td>
<td>Reducing the thickness of surplus glass remaining on and near the blow-pipe and for forming the neck (Fig. 2d).</td>
</tr>
<tr>
<td>Neck-ring mould</td>
<td>Less preferred British term for finish mould. See: Finish, Collar and less preferred shorter term Ring-mould.</td>
</tr>
<tr>
<td>Onion bottle</td>
<td>Bottle shape used between c. 1650 and 1750 (Fig. 20 d-f).</td>
</tr>
<tr>
<td>Open pontil</td>
<td>Less preferred term for glass-tipped pontil mark. See: Glass-tipped pontil.</td>
</tr>
<tr>
<td>Parison</td>
<td>Preferred older term for half-formed shape in the traditional glass-blowing process (Fig. 2). (The less preferred American term blank is usually used to describe the same half-formed shape in modern automatic bottle-making practice.) Parison is occasionally used to describe the metal mould pieces which mould this shape. (Figs 93-95), but the term parison mould is preferred. This mould forms parison mould seams on the finished glassware (Fig. 97).</td>
</tr>
<tr>
<td>Paste-mould</td>
<td>Cast iron mould in which the inner surface has a coat consisting of a charred mixture of linseed oil and charcoal or saw dust, initially applied as a paste. The wetted paste-mould allows rotation of the blow-pipe, giving turn-marks and eliminating mould seams (Figs 6, 20, 43).</td>
</tr>
<tr>
<td>Pattern mould</td>
<td>Mould with the inner surface engraved or ribbed to produce a pattern on the glassware. (Fig. 33).</td>
</tr>
<tr>
<td>Phial</td>
<td>Small, slim, cylindrical bottle for medical preparations, rarely more than 100 mm (4 inches) high.</td>
</tr>
<tr>
<td>Pitting</td>
<td>Small usually round marks sometimes caused by weathering (corrosion) of glass.</td>
</tr>
<tr>
<td>Plain pontil</td>
<td>Less preferred term for glass-tipped pontil mark. See: Glass-tipped pontil.</td>
</tr>
<tr>
<td>Plate glass</td>
<td>Thick, flat glass with flat, polished surfaces that has been either cast (Fig. 99) or rolled (Fig. 107).</td>
</tr>
</tbody>
</table>
LIST OF TERMS

Plate-mould  Mould fitted with an interchangeable embossing plate enabling different designs to be produced from the same mould. (Figs 48, 49)

Plug  Less preferred term for plunger. See: Plunger.

Plunger  Part of the finish-mould assembly used to form the mouth and finish of a machine-made bottle (Figs 93-95). See also: Pressing.

Polishing  A process of smoothing glass surfaces using a wheel fed with rouge or cerium oxide pastes.

Pontil  A plain iron rod used for holding an article by the base during hand manipulation (Figs 2j, 2k, 3).

Pontil mark  The mark or scar left when the pontil is broken away from the base of an article. Such an article is said to be pontilled.

Post-bottomed  Shape of a base-plate in the blow-mould assembly (Fig. 38a).

Press  The equipment used in glass pressing.

Pressed  Glass formed by pressing.

Pressing  Pressing hot glass into a mould with a metal plunger to form a pressed glass design (Figs 86-88).

Press & Blow  The two stage pressing of a parison and, (after allowing the surface of the glass to reheat) final blowing of the shape in a blow-mould (Fig. 93).

Pucellas  Shaping tool used to widen the mouth of a piece of glassware during traditional blowing (Fig. 51).

Push-up  Form of bottle base which is pushed-up mainly to ensure that the base sits evenly on a flat surface (Figs 21-24).

Pyrex  A heat and chemically resistant borosilicate glass used extensively in industry and as ovenware.

Pyroceramic  A ceramic product, initially shaped and formed from molten glass containing crystal nucleating agents, which is then heat treated to form a fine interlocking crystalline material used as ovenware.

Refractive index  A measure of the change in direction (and speed) of light on passing into a transparent material. Brilliant, sparkling glasses, such as lead crystal, have a higher index than common glass.

Reheat  The reheating of glass shapes during manipulation (Fig. 2m). Also used to describe the time required for surface reheat to allow the final blowing in machine-made bottle procedures.

Reinforcing collar or ring  See: Collar and Finish.

Resist  Resinous cover that resists acid fluorides during the etching of glass surfaces.
Rim  The finished edge of glassware. See also: Lip, Collar and Finish and String-rim.


Ring-pontil  The circular mark formed on the base of an article when a metal tube or blow-pipe is used as a pontil rod. See: Pontil.

Rolled glass  Flat glass formed by a continuous rolling process. See: Cast glass and Plate glass.

Sandblasting  A process of abrading glass by means of sharp sand impelled by a jet of steam or compressed air. The process is used for decoration.

Sand-pontil  A glass-tipped pontil dipped in sand. The term is also used to describe the mark left by the sand-pontil on the base of the bottle.

Scuffing  Abrading of glass surfaces during use.

Seal  Design or initials pressed into a blob of molten glass which is attached to the shoulder or body of a bottle. See: Closure for alternative meaning.

Seam  A general term used for any mark on a finished glass surface caused by the very small air gap between two separate but matching mould parts (Figs 37, 38, 41). Hence - Parison-mould seam, Blow-mould seam, Baffle-plate seam, Finish-mould seam etc.

Seed  Small bubble of gas or air trapped in molten glass.

Semi-automatic  Bottle machine fed by hot glass which has been gathered by a blow-pipe.

Shaft and Globe  Early bottle shape used between c. 1630 and c. 1670 (Fig. 20a).

Shear mark  A shear mark is a discolouration or streak of bubbles caused by oil lubricants, or the sheared tail of glass wrapping over to form a fold on the surface.

Shears  Manually or mechanically operated scissors used to cut hot glass.

Sheet glass  Often used as a general term for flat glass. Specifically, it refers to glass drawn upwards through water-cooled rollers from a tank of molten glass (Fig. 106), hence drawn sheet glass. See: Drawn, Flat and Float glass.

Silvering  The depositing of silver on the surface of glass to form a mirror using reduced silver nitrate solution.

Slump  Deformation of glass under its own weight.

Specific Gravity  Mass (‘weight’) per unit volume. e.g. The metal lead has a higher specific gravity and is denser than glass. For many purposes the less preferred term density is used, although technically they are not precisely identical.
LIST OF TERMS

Streak  
Less preferred term for striae. See: Striae.

Striae  
A line of bubbles or glass of different composition which can show the glass flow lines and thus assist in assessing moulding methods (Fig. 6).

String-rim  
Less preferred term for part of the anchoring collar or the whole finish in some early bottles. See: Collar, Finish.

Suction-blow  
Alternative two-stage method of making a bottle (Figs 93, 94). Forms a typical suction scar (mark) in the base or heel of a bottle due to the cut-off knife (Fig. 96). See: Blow-blow.

Tableware  
Glassware used to serve food or drink.

Tempering  
Strengthening glass, usually flat glass, by force-cooling the surface with uniformly distributed cold air blasts.

Tongs  
Shaping tool used during traditional blowing (Fig. 51).

Turn marks  
Circular marks on glassware caused by contact with a wooden former or paste-mould during rotation (Fig. 6, 20n, 43b).

Turn-mould  
A wooden or paste-mould in which hot glass is rotated during blowing. See: Paste-mould.

Vial  
Less preferred term for phial. See: Phial.

Viscous  
Stiff, sticky, slow moving (of a liquid such as glass).

Whittle-marks  
Less preferred term for cold-mould marks. See: Cold-mould marks.

Wired Plate  
Cast or rolled plate glass in which wire mesh is embedded.
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11.0

AUSTRALIAN SOFT DRINK DISTRIBUTORS, MANUFACTURERS AND BOTTLES c. 1830-1930.

Compiled to 30 June 1988

The names of Australian soft drink suppliers have been placed in alphabetical order, together with their source and trade mark (TM) if known. Unless otherwise stated, places quoted are in N.S.W. The state is also not recorded for well-known Australian towns. In about one-fifth of the cases cited in the table, details or photographs of the bottles will be found in the references cited. Where published, the approximate dates of suppliers and trade marks, together with any known dates of patents, are given. Published estimates of the age of the bottles are not included in the table.

BODY SHAPE CODES

C Cylindrical. Body Length: Diameter between 2:1 and 3:1, with rounded or sloping shoulders.
O Oval shape, (Torpedo or Hamilton Patent, 1812), but used earlier in Europe, c. 1830-1905.
S Skittle, also called a ‘Flat-footed Hamilton’, c. 1860-1930.

NECK/FINISH/SEAL-TYPE CODES

c Codd (or marble) seal and variants, c. 1875-1930.
 cs Crown seal, c. 1905-date
 g Gledhill Patent, rubber ball seal, c. 1880-90.
 ho Hogben Patent or Stick bottle c. 1870-90. Similar designs by Barrett, Vallet, Adams etc.
 i Internal screw, Barrett and Riley Patents, c. 1880-1940.
 l Lamont Patent, internal shaped plug, c. 1870-1905.
 s Spherical or ‘blob-tops’, but also used to describe earlier flatter reinforcing rings, c. 1850-1930.

Example: O/c means an Oval body with a Codd-type marble seal, often called by collectors a ‘Hamilton-Codd hybrid’.

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S.G. Sydney Gazette, 1803-39 incl.
TM Trade mark or design embossed on glass, registered or not.

<table>
<thead>
<tr>
<th>NAME/TRADE MARK/REFERENCE</th>
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<tr>
<td>A.A.N.&amp; B. Co. See Adelaide Aerated Waters</td>
<td>CM/s, C/i</td>
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<tr>
<td>A.B. Penguin. See Penguin</td>
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<td>A.P. Brand. See Pleyn A.</td>
<td>C/c, C/cs</td>
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<td>Anderson W. Darlington, c1890-1891. DJ 20</td>
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ABR 1980 6(34)27; DJ 22
Cheyne’s Soda Water, Sold by J. Carfrae. SH 28-2-1846
Clancy W.E. Nyngan. “Shaking hands” TM. AABC 1982 1(2)28; AL
16-2-1985; C 1987,31

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Clare Brewery, S.A. NBC 1974 1(5)15
Clare T & W. Sydney, c1865-1871. DJ 22
Claremont Mineral Springs Co. Ltd. W.A. “Fountain” TM. NBR 1974 1(4)20; AABC 1983 2(7)31, 1984/5 3(5)7; AL 31-8-1985
Clark, see Braynard Clark
Clark H & Co. Snowdrop Mineral Waters Williamstown, S.A. c1900-1920. ABPG (1)47
Clark & Co. Ferntree Gully, Vic. “Lark” TM. ABPG (3)6; ABR 1981 7(41)28; C 1987,47
Clarke G.N. Coolgardie, W.A. “Pickwick” TM. ABR 1982 7(42)1; AABC 1982 1(1)13
Claytons Cardiff, U.K.(?) Shaw’s Patent. ABR 1981 7(38)31
Claytons (non-alcoholic) Brewery Ltd., Adelaide, c1914-? AABC 1986 3(13)18
Clery J. Sydney, c1873-1876. DJ 22
Clements & Allen Beechworth, Vic. “Lion” TM. ABR 1982 7(42)31
Clifton (& Wood), c1872-1879, then Clifton F & G., 1879 on. Newcastle. AABC 1982 1(4)25
C.M.W. Kent Town, Adelaide. ABPG (3)8
Cobb (& Dennison) Sydney. Imported bottling and corksing machine. SG 18-8-1828
Cock Bros. Sydney, c1876. DJ 22
Cockburn M. Sydney, c1866-70. DJ 22
Codd Patent U.K. c1872. Marble seal. DJ 41
Cohn Bros. Bendigo, c1854 - onwards. KA 37; ABR 1981 7(41) 21; AABC, 1988 (3)22
Cohn I.J.K. Southern Cross & Coolgardie, W.A.ABR 1979 5(26)25
Coleman Bros. Newcastle, c1895; Singleton, c1909-on.ABR 1980 5(30)30, 1981 7(41)20
Coleman G.A. Kempsey, AL 2-11-1985
Coleman W.H. Parkes. “Key” TM. AABC 1985/6 3(10)4
Collet I. ‘IC’ TM. C 1987,47
Collet F.L. Mackay. “Palm Trees” TM. AABC 1985 3(5)8
Collins & Sons. Deniliquen. AABC 1985 3(8)17
Collins & Roach. Sydney, c1879. DJ 22
Colliers T. Ultimo, c1883-1884. DJ 22
Collins T.B.N. Leichhardt, c1885-1889. DJ 22
Commonwealth Cordial Co. Canberra, c1930-40. “CC” TM. BCR 1971/2
Condon & McMahon Port Pirie, S.A. AABC 1983 2(8)26
Connelly J. Sydney, c1855. DJ 22
Connolly J. Phoenix Brewery, Cowra. ABR 1976 2(5)11
Conway J.O. Conway’s Cordial Factory, Newtown, c1903-6. DJ 22; AABC 1986 3(14)2
Cook H. Sydney, c1858-61. DJ 22
Cook W. Sydney, c1869. DJ 22
Cooma Spa Co. Ltd. Sydney, c1904-1926. DJ 22
Cooper R. Sydney, c1885-1888. DJ 22 —
Cooper & Barclay. Marrickville, c1895-1930; Waterloo c1924. "Crown" TM. BCR 1971 2(4)20; DJ 22 C/i
Cowap. A.V. Launceston. "Kangaroo" TM. ABR 1979, 4(24)9, 1981 7(38)31 C/c
Cowashee Dimshaw & Bros. Adelaide. ABR 1971 7(41)27 C/c
Cowburn W.H. Battery Point, c1820/30-1863; Black Prince Inn, Elizabeth Street, c1863-68; Jolly Hatters Inn, Melville St. c1868-83; Bush Inn c1883 on; all Hobart. AABC 1984 2(12)7 O/c,C/c
Coxon G.A. & K.W. Victoria(?) c1918-1959. BCR 1971 2(2)24 C/c
Craig F. York, W.A. BCR 1973 4(1)17; ABR 1979 5(26)25 O/c,C/c
Crane & C'Connell. Newtown, c1887-89. DJ 22 —
Cranfield G.A. Young, "Moses striking rock" and "Mountain" TMs. ABR 1979 5(27)34; AABC 1982(2)27; C 1987,32 C/c
Crittenden N. Adelaide, c1875. ABR 1980 5(30)8 CM/s
Crowbie & Co. Helensburg, SBC 1982 CM/s
Crowder W.N. & Co., now Downer & Co. Adelaide "Dog" TM. NBR 1974 1(5)12; ABR 1980 6, 32(10) AABC 1987 3(20)9 CM/s,O/s,C/A,CD/s
Crowder & Letchford Perth, "Lion" TM. ABP 3(4)2; ABR 1981 7(37)31, 1980 5(36)26 CM/s.C/c
Cruikshank Hamilton, Vic. 'Cockerel' TM. C 1987, 23 C/c
Crystal Aerated Water Co. Launceston. "Crystal" TM. ABR 1979 4(24)9; AABC 1983 1(5)16/17 C/c
Crystal Cordial Co. Port Augusta, S.A., c1890-1900. ABR 1981 7(41)20 —
Crystal Fountain Co. Sydney, c1883-1893. "CF" TM. ABR 1976 2(5)19; DJ 22 C/I,C/s,C/c
Crystal Fountain Co-op Cordial Co. St. Peters, c1912-30. DJ 22 C/I,C/s,C/c
Crystal Fountain Works. Rockhampton, Qld. see Whitehouse T.
Crystal Soda Water. Newcastle SBC 1982 Q/s
Culverhouse's Lemonade. "Invieta" (horse) TM ex London. ABP 1(47, (3) 42; ABR 1978 4(22)37 O/s,C/s
Cummings Hotel Sydney. Selling Schweppes Soda Water. SG 12-9-1829, 23-10-1830 —
Curran J. Gilgong, c1870-1903. ABR 1981 7(41)21 C/cs,C/hi
Cushman J. E. Gunnedah. "Queen Bee" TM. AL 2-11-1985; ABP 4(4)15 C/cs,C/hi

Dakin Bros. Southport, N.T., c1870, ABR 1981 7(39)22 O/s
Dalm G. Oertel. Sydney, c1885-90. ABR 1979 5(25)3, 31; DJ 23 O/s,C/s
Dandy Preserves Pty Ltd. Dandenong, Vic. C 1987,49 C/c
Daniels F.D. Drouin & Warragul, Vic, c1911-1946. "Name in Shield" TM. AABC 1985 3(8)8 C/c,C/fi,C/cs

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Davey T. Zeehan, Tas. “TD” TM. ABR 1979 4(24) 7-9 C/c

David & Bunyan (also Davis Bunyan) Hornsby, c1919-1928, SBC 1982, DJ 23 C/cs

Davies D. Sydney, c1864. DJ 23 —

Davies H.R. & Cappel W.H. Bendigo, c1899-1901, then reverted to Davies T & Co. KA 47 —

Davies T. & Co. Sandhurst (Bendigo), c1877-1905. “Knight on horse back” TM. ABPG (2) 48; ABR 1980 6(35)8-9; KA 47 C/c,O/s,C/l,C/s

Davis & Grant, Geelong, Vic. C 1987, 43/7 C/c

Davis T. Burnie & Bay, Tas. “Emu” TM. ABR 1979 4(24)7; AABC 1984 3(6) C/c


Dawson J. St. Kilda, Vic. AABC 1983 1(5)16/17 C/l

Deane A. & Co. Arrarat, Vic. “A.D.” TM. AABC 1983 2(7)31; ABPG (2) 43 C/c

De Conchy’s (De Gruchy?) bottled Soda Water, SG 21-8-1834 —

Deep Spring. Daylesford, Vic. AABC 1983 1(5) 16/17 C/s


Delve W.S. Petersham, c1887-1890. DJ 23 —

Dempsey J. Kalgoorlie. “Dog’s Head” TM. AABC 1983 1(6)35, 1985/6 3(10)18 C/s,C/c


Dickson J. & Co. Sydney, c1923, DJ 23 —

Disher & Milne Patent Carrarra Water. ABR 1980 5(30)7 CM/s

Dixon G. Patent. Melbourne, Codd with 4 deep indentations in neck. ABR 1982 7(42)26; DJ 44 C/c

Dixon J. Prahan Ice & Aerated Water Co. Melbourne, “JD” TM. BCR 1972 3(4)12; ABPG (2) 43 C/c


Dobson E.A. Mittagong, c1912 on. ABR 1979 5(24)34,7(41)21 —

Dobson J.W. Patent c1885. 3 or more circular or triangular indentations in neck of a Codd bottle. DJ 41 C/c

Dobson’s Patent, Moonee Valley Cordial Co. Vic. ABPG (1) 49; ABR 1979 5(24)34; DJ 41 C/c


Dunney D. Waterloo, c1883-85. DJ 23 —

Dowling & Dominick. Croydon, c1890. DJ 23 —

Dowling J. Surry Hills, c1885; Croydon, c1891. DJ 23 —

Downer & Co. (late Crowder & Co.) Adelaide. ABPG (1)51; ABR 1980 6(32) 10; AABC 1983 2(8)26; NBR 1974 1(5) 12 C/l,C/c,CM/s

Doyle W.A. Croydon, Qld. BCR 1972 3(3)20 C/c

Druitt Camden. “Man” TM. AABC 1986 3(14)2 C/c

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Dryer & Sons. Sydney, c1876. DJ 23
Duffy J. Sydney, Low’s Directory 1844-5
Dunk D. Sydney, c1855. DJ 23
Dunn C. Sydney, Low’s Directory 1844-7
Dunn N. Sydney, Low’s Directory 1844-5; DJ 23
Dwyer H. Darlington & Marrickville, c1873-1885. DJ 23
Dyason J. Sydney, c1851. AABC 1986 3(13)15

Eagan D. Union Cordial Works, Bendigo. ABPG (3)7
Eagles & Wright. Petersham, c1890-91. DJ 23
Earle C. Sydney, c1855. DJ 23
Easther A.J. Launceston. ABR 1979 4(24)8
Eastman J. & G. Broken Hill, c1914 on. ABPG (1)48, (3)42; A.L.
2-11-1985
Easton A. Camperdown, c1888-1895. DJ 23
Easton Roberts & Agnew. Camperdown, c1890. DJ 23
Eaton, Wagga Wagga. “Cat’s Head” TM. AABC 1985 3(7)28
Eckersley & Sons. Melbourne & Sydney. “Made from pure carbonic acid” TM.
Also “Clown” TM. ABPG(1)49; ABR 1978 3(18)22, 1981 7(40)27
Eckersley & Sons. Sydney, c1911-15. DJ 23
Ecks (NSW) Ltd. Waterloo, c1924 on. DJ 41
Eclipse Patent, ABR 1982 7(42)31; DJ 41
Eclipse Cordial Factory. See Asher J.
Echuca Brewery Co. Echuca, Vic. ABR 1981 7(38)30; AABC 1982 1(1)36
2(2)24
Edwards & Murphy. Rockhampton, Qld. “Brolga” TM. AABC 1983
1(5)16/17
Edwards & Sons. Devonport, Tas. “Bull’s Head” TM. AABC 1984 3(2)11;
ABR 1979 4 (24)7
Egan C. Inverell, c1870-1921. “Crossed battleaxes” TM. ABR 1976 2(5)12,
1980 6(34)17; AABC 1985 3(8)27; ABPG (4)15
Egan D. Ashfield, “Harp” TM. ABR 1980 6(34)17; DJ 23
Egan D. Bendigo. See Union Cordial Works
Ellery Bros. Clare, S.A. NBR 1974 1(5)15
Elliott E. Alexandria, c1895. DJ 12
Elliot E.E. Armidale. AABC 1986 3(14)21
Elliot G. Riverine Brewery, Deniliquin. “Bird” TM. AABC 1982 1(1)9; ABPG
(3)45; A.L. 2-11-1985
ABR 1981 7(38)31
Ellisruth R. (Chemist to the Royal Family) London, c1840. AABC 1982
1(2)28
Emmett J. Hobart, c1855-1860, c1864-1871. AABC 1984 3(2)6
Empress Patent. See Barnett & Foster. DJ 42
Eodene Co. (Address not known). AABC 1983 2(10)21
Epecol. Eyre Peninsula, S.A. AABC 1983, 2(8)26
Ernsten E. Deniliquin. AABC 1985 3(7)17
Eureka Co. Ballarat. “E” in double triangle TM. C 1987, 45
Evans D. Redfern, c1865-82, DJ 23
Evans G. Sydney. Took over J.C. Russel’s business 1845. Surry Hills, c1855-
70. SH 4-9-1845, 25-1-1847; DJ 23

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Evans S. Sydney, c1871. DJ 23
Everett. Cramer, Vic (?) ABPG (1) 48
Eyre C. St. Leonards, c1888. DJ 23
Excelsior Bottling Stores & Cordial Wks. Sydney, c1897-1922. DJ 23

Fackerell E.J. Murwillumbah, “E.J.F.” TM. ABR 1982 7(42)26
Farmar, Naracoorte, S.A. AABC 1983 2(8)26
Faulkner S. Narrabri. ABR 1979 5(25)7
Faust T.M. Milton, c1897. ABR 1981 2(41)21
Ferguson’s Cordial Wks. Mosman, c1915. SBC 1982; DJ 24
Ferguson. Ipswich, Qld. “Emu” TM. AABC 1984 2(11)14
Ferguson W.A. Volcanic Aerated Water Works, Wellington. “Syphon” TM. AABC 1982 1(2)28; ABR 1981 7(41)9
Ferguson Warren. “Two Medallions” TM. AABC 1986 3(14)17
Field T. Sydney, c1851-1855. AABC 1986 3(13)15
Fittler H & V. Armidale, c1907-1912. “Crown” TM. AABC 1984 3(1)19, 1985/6 3(10)7
Fleets Lemonade Double Soda & Mineral Waters. London. ABR 1978 4(22)37
Fletcher J. Koroi St., Warrenbool, Vic. Aa 1988 1(2)15; C 1987, 45
Fletcher S. Warrnambool, Vic. “Crossed Flags” TM. ABPG (2)49; AABC 1983 2(7)31, 1985/6 3(10)18
Foreign Agency Co. Sydney, c1897-1907. DJ 24
Forbes Cordial Factory, c1862. See Mayne D., Bathurst National Advocate 1911.
Foss A. Sydney, 1828-1841. Imports soda-water engine, SG 9-2-1832
Foster A. Singleton, c1900-1909. Bought by Coleman. ABR 1981 7(41)20
Fatheringham, Gawler, S.A. AABC 1983 2(8)26
Foureur H. Mitcham, S.A. c1910. AABC 1982 1(1)33
Fowler E.C. & Son, Leonora, W.A. “Swan” TM. ABR 1981 7(39)25
Fowlers Cordial Works Leichhardt, c1920-31. DJ 24
France Roberto. Bottle Manufacturer, London St., London. ABR 1977 3(17)20
Franklin & Co. Geelong. AL 2-11-1985
Frankston Springs. Melbourne, “Dolphin” TM. ABPG (1)48; BCR 1972 3(13); ABR 1982 7(42)26
Frazer J. Stawell, Vic. AABC 1986/7 2(16)17
Frazer & Neave Ltd. Singapore. “Rearing Lion between Shields” TM. AL 31-8-1985
Frazer L. Sydney, c1855. DJ 24

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Frazer S. Charters Towers, Qld. "Stags Head" TM. ABR 1979 5(28)13, 1980 6(34)35

Freeman Bros. Croydon Park, c.1919-30. DJ 24

Freecing Powders and Wine Coolers imported. SG. 17-12-1831


Fuchs P. & Son. See also Fox F.E. & P. Camden. "Fox" TM. ABR 1979 5(25)9, 1980 6(34)17; AABC 1985 3(8)16

Fullager G. Campbelltown, c.1863-1868. DJ 24


Furnace C. Sydney, c.1876-1877. DJ 24

Furness F. & P. Great Western Aerated Water, Cordial and Vinegar Manufacturer, Bathurst, c.1862-1867. Bathurst Directory, 1862; N.S.W. Centennial History, c.1888; Bathurst Times 27-8-1910


Gamble H.L. Melbourne. "HLG" TM. ABPG (3)7; AABC 1984/5 3(4)17.

Garbutt T. Sydney/Globe, c.1855-66. DJ 24


Garner & Harrison. Globe, c.1885. DJ 24

Garret W. Newtown, c.1884-85. DJ 24

Gansberg W.A. Bathurst. Bathurst National Advocate 4-11-1848

Geake Bros. Late J.S. Eyre & Co., Launceston, Est. 1830. ABR 1981 7(4)27

Geelong Aerated Waters. ABR 1980 6(36)30

Garrish G. Sydney, c.1836. DJ 24

Gibson J. Yarrawanga, Vic. "G" in circles TM. C 1879,51

Gilbert W.H. Marrickville, c.1877-88. DJ 24

Gledhills (and Hunt) Patent. New Zealand 1874. Rubber ball stopper. ABPG (1)46; DJ 43; AABC 1986 13(2)25


Godfrey P. Broken Hill & Katoomba. "Emu" TM. BCR 1971 2(3)19

Golden Ale Brewery, Redfern, c.1918. DJ 24

Goodfellow R.M. Ballarat. "Horse-head" TM. and "Mine-shaft & tools" TM. ABR 1977 3(15)9; AABC 1982 1(2)28

Goody L. Melbourne, 1882-1890. "Anchor" TM. BCR 1972 3(4)13; ABR 1980 6(34)30, 1981 7(4)10; ABPG (2)49; AABC 1985 6(3)10

Gordon J.N. Hobart. ABR 1979 4(2)15

Goulburn Valley Co. Melbourne. "World" TM. AABC 1983 2(7)31; ABPG (3)43

Goulding C.R. (E. Spry, Prop.) Prahan, Vic. "CRG" 94-96 High St. TM. ABPG (2)45, (3)8; AABC 1983 2(7)31; C1987,47

Gow J. Footscray, Vic. "Volcanic" TM. BCR 1972 3(4)13

Gower Bros. Seymour, Vic. "Australian Coat of Arms" TM. AABC 1985-6 3(10)22; ABPG (2)43

Gracey J.R. Nathalia, Vic. "Flag" TM. AABC 1982 1(2)27

Graham James. Woolloomooloo, c.1866; Chippendale, c.1873 DJ 24

Graham J. Parramatta, c.1900. DJ 24

Graff & Law. Manly, c.1889. DJ 24

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Grant A. Glebe, c1865. DJ 24
Grant I. Cabramatta "Kangaroo" TM. ABR 1980 6(34)17
Grant I. Marrickville, c1918. DJ 24
Grant Mc K. Neumarracarra, Champion Bay, W.A. (?) BCR 1973 4(4)10
Gratle H. Northam, W.A., c1901 on. BCR 1971 2(2)25
Gray J. Newtown, c1858-1876. DJ 24
Great Western Aerated Water etc. See Furness F. & P. and Butler W.
Green S. J. & Co. Fitzroy, Vic. "Rampant Lion" TM. ABPG (2)49, (3)43; ABR 1981 7(41)10
Green T.J. Morang, Vic.(?) "Swan" TM. ABPG (2)43
Green W. Sydney, SG 23-4-1835
Gregory E.W. Paddington, c1861. DJ 24
Grey C.B. Aerated water and cordial factory, Circular Quay and Smithton, Tas. "Pelican" TM. ABR 1979 4(24)7; AABC 1984 3(2)11
Griffiths E. & N.E. Ashfield, c1928-1930. DJ 24
Grigson & McSweeney. Melbourne. "Bird" TM. AABC 1984/5 3(4)15
Guinane P.J. Charters Towers, Qld. "Quenton" TM. BCR 1971 1(6)19
Gunnsen & Sons. Ballan, Vic. AABC 1983 1(5)16/17

Haddock & Sons. U.K. Ponilled. ABR 1978 4(23)10
Haley W. Glebe, c1882. DJ 25
Hall G. Marrangville, c1849, then Norwood, S.A. c1872. ABPG (3)42; ABR 1981 7(41)20; AABC 1982 1(1)33
Hall S. Surry Hills, c1858-69; Glebe, c1870-71; Ultimo, c1877-88; Sydney, c1877-88. DJ 25
Hamilton J. Waterloo, c1867-69. DJ 25
Hamilton F.J. Sydney, c1873-77. DJ 25
Hamilton Patent U.K. 1809. Ovate bottle. Previously used by Nicholas Paul c1790 and used by Schwegge, c1804. DJ 40
Hamlyns Helidon Spa Co. Sydney, c1903-1904. DJ 25
Hamlyn & Liddon. Sydney. DJ 25
Hammer & Crowe Windsor, Vic. ABPG (4)8
Hankey W. Sydney. Low's Directory 1847
Hard F.E. Newtown, c1904. DJ 25
Harrington W. Parramatta, c1890. DJ 25
Harris E.G. N.Fitzroy, Vic. c1885-1900, BCR 1972 3(4)13
Harris J.A. Beaufort, Vic. "Dog" TM. C 1877, 49
Harris W. Launceston. NBR 1974 1(4)12
Harrison R. N.Fitzroy, Vic. "RH" TM. ABR 1980 6(30)30, 1981 7(40)27; ABPG (1)48, (2)45; AABC 1983 1(7)31; 1986 3(13)10;
Harrison & Lunt. Quirindi, c1900-1911. Sold to T. Tinson. ABR 1981 7(41)21
Harwood W. W.A. C 1987,23
Harry W. Surry Hills, c1883. DJ 25
Hart D. "DH" TM. AABC 1986/7 3(16)24
Hattersley J. Yakandandah, Vic. "Coat of Arms" TM. AABC 1983 2(7)31
Haughey P. Murrumburrah. “Kangaroo” TM. SBC 1981; ABR 1980 6(34)17 C/c
Hawkins J. Darlington, c1871-1892. DJ 25 C/c
Hay G. see Colac Aerated Waters C/c
Haydon W.L. Gawler & Kapunda, S.A. ABR 1979 4(24)43, 1981 7(38)31 C/c,Cf
Hayes A. & Co. Newtown, c1897-1901. DJ25 C/c
Haylock C. Moonta, S.A. BCR 1972 3(6)16 C/A/C/C
Hayne J. & J. Scone. BCR 1971 2(1)16 C/c
Haynes Patent. ABR 1979 5(28)4 C/c
Headly. Woolongong. ABR 1979 5(28)13 C/l
Headleys Aerated Spring Waters. (See also Mahon & Headley.) Wagga Wagga. “Tigers Head” TM. ABR 1980 6(34)17; AABC 1984 3(1)16 C/c
Healey Bros. Newcastle, c1895 on. Became YY Aerated Water Co. 1921. ABR 1981 7(41)20; AABC 1988 3(23)28 C/c
Healey Bros. Wickham & Cessnock. “Maltese Cross” TM. ABR 1982 7(42)26 C/c
Heap H.J. Camperdown, c1900-01. DJ 25 C/c
Heath J. Wallaroo, S.A. BCR 1972 3(6)16 O/s,CD/s
Hebbelwhite W. Auctioned Soda Water bottles and sold soda-water machine. SG 21-9-1837, 10-2-1838, 1-8-1838, 13-7-1839 C/c
Heffernan J. Sandhurst (Bendigo), c1872-79. KA 69 O/s
Hefferon W. Sydney, c1866. DJ 25 C/c
Heliar T. Kerang, Vic. AABC 1983 2(11)18 C/c
Helidon Spa Water Co. Brisbane, c1874, “Fountain” TM. ABR 1979 5(28)13, 1981 7(41)20; AABC 1983 1(51)16/17 C/l,O/s,CD/s
Helidon Spa Water Co. Sydney, c1903-04. DJ 25 O/s
Hemley & Sons. Stawell, Vic. AABC 1986/7 3(16)17 C/c
Hendrickson Patent. Hogenb type. DJ 43 C/ho
Henfrey W.G. Sydney, 1848-78. DJ 25 O/s
Henfrey & Co. Sydney, c1879-1916; Redfern c1903, ABR 1979 5(25)30; DJ 9.25 O/s,C/c,C/c,cs
Henfrey & Tooheey. Sydney, c1869-70. DJ 25 C/c
Henley W.R. Bega. AABC 1987 3(20)14 C/ho
Henson W.H. Grafton “WHH” TM. ABR 1981 7(39)31 AABC 1987 3(19)31 C/c,Ch/ho
Hepburn Spa. Daylesford, Vic. SBC 1982 C/c
Hepburn Springs. Daylesford, Vic. See Lupton T.J. AABC 1983 2(10)17 C/i
Herald & Co. Redfern, c1890-93. DJ 25 C/c
Herbert & Sons. Fremantle. “Square and Compasses” TM. BCR 1972 3(3)20; AABC 1986/7 3(16)8 C/A,C/C
Higginson Royal King Brand. “Kings Head” TM. BCR 1971 1(6)19 C/l
Hiscock G. Guildford, W.A. “Cockroach” TM. ABR 1979 5(26)31 C/c
Hives J. Manly, c1887. DJ 25 C/c
Hives & Grecce. Manly, c1888. DJ 25 C/c
Hobbs A. Kyneton, Vic. AABC 1983 2(10)31 C/c
Hogan & Mahon. Wagga. “Wheat/Sheep/Ship/Miners Tools” and “HM” TM. ABPG (3)4 C/c
Hogben Patent 1870, Barrett & Elers, 1868. Wooden stick with washer (stick bottle). DJ 43. See also Matthew J. and Ride W. Benalla. ABPG (1)46; ABR 1980 6(33)31 C/ho
Holland Long & Co. Albany W.A. “Rampant Lion” TM. C 1987,31 C/c
Holler & Co. Bridgewater. ABPG (1) 58 O/s
Homebush Cordial Co. Ltd. Homebush, c1926. DJ 25 —
Hooper J.H. Ipswich, Qld. “Unicon” TM. AABC 1(5)10; ABR 1980 6(32)31

Hooper Strive & Co. Chemists to the Queen, Royal German Spa, Brighton, U.K. and Pall Mall, London. ABR 1979 5(27)35

Hopkins E. Surry Hills, c1873. DJ 25

Hopkins G. Sydney, c1866. DJ 25

Hopkins & Lester. Sydney, c1867. DJ 25


Howard W.J. & Co. Alexandria, c1918. DJ 25

Howe C. Paddington, c1868. DJ 25

Howe C. Sydney, c1877. DJ 26

Howe J. Surry Hills, c1877. DJ 26

Hoy R. Paddington, c1885. DJ 26

Hume & Co. Sydney, c1876-79. DJ 26

Hume G. Melbourne, c1857-1861. ABR 1978 4(23)14

Hume & Pegrum. Sydney, c1879-1898. Includes a Kilner patent. DJ 17 & 26; ABR 1981 7(39)31; ABPG 3(4)

Humphries F. Adelaide & Jamestown, S.A. c1900. Previously P.G.Bennett. ABPG 3(4); AABC 1983 3(17)20; As 1988 1(1)10

Hunt. Bathurst Soda Water Factory, c1923 (From A.B. James). Sold c1924 to Ashfield. SBC 1982


Hunter W.J. & (Hunter Bros.) Kangaroo Flat, Vic., c1899-1907. KA 78

Hutchinson Patent, Pioneer Works, Sydney, ABR 1979 5(28)31; DJ 31, 39

Hutchinson W. Hamilton, c1897 on. ABR 1981 7(41)20

Hygea Aerated Waters. Petersborough, Vic. (?) NBR 1974 1(5)12

Innisfail Aerated Water Co. Ltd. Innisfail, S.A. “Horse Head” TM. AABC 1983 1(6)5

Innot Spa Waters, Qld. ABPG 2(4)22

Ipswich Aerated Water Co. Ipswich Qld. “3 Barrels” TM. AABC 1983 1(5)16/17; ABR 1980 6(34)34

Ivory J. Coolgardie, W.A. “Camel” TM. AABC 1985 3(5)31

Jackson T. Sydney, c1855. DJ 26

Jackson Bros Corowa, “CSJ” in square TM. C 1987,53

Jackson J.E. Bega. C 1987,43

Jacob E. Sydney, c1855. DJ 26


James Bros Ltd. Manly/Sydney, c1912-16. DJ 26; Aust. Cordial Maker 24-4-1914

James W. Sydney, c1922. DJ 26

Jarman H.A. Redfern, c1887-89. DJ 26

Jefferies Butler & Co. Tamworth, c1921. ABR 1979 5(25)31; AABC 1983 2(8)31

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Jenkins C. Rockdale, c1891-96. DJ 26
Jenkins H. Zeehan & Dundas, Tas. ABR 1979 4(24)9  
Jenkins H.P. Sydney, c1869-77. DJ 26
Jenner J. Werris Ck. “Locomotive” TM. ABR 1980 6(34)17; AABC 1985 3(8)9  
Jensen J. Redfern, c1877. DJ 26  
Jensen Jens. Newtown, c1882-94. DJ 26  
Jeremy & Pearson. (U.K.) ABR 1976 2(3)31  
Johnson C.F. Redfern, c1882-1913; Erskineville 1905. (Became Johnson Condiment Co. 1913) DJ 26, A.L. 18-2-1985  
Johnson F. Riddell, Vic. ABR 1981 7(40)27  
Johnson J.H. Roebourne, W.A. ABR 1980 6(36) 26; NBR 1974 1(4)7  
Johnson T. Sydney, c1869-70. DJ 26  
Johnson & Owen. Adelaide. AABC 1982 1(1)32  
Johnson C.F. Sydney, ABR 1979 5(29)8  
Johnston J. & A.G. Oakbank Brewery S.A. ABPG (3)42; AABC 1983 2(8)31  
Jones W. Sydney, c1873. DJ 26  
Jones W. & Co. Ultimo, c1887. DJ 26  
Jones & Walker See Frith Gordon  
Jones W.R. Burnie, Tas. With and without “W.R.” TM. ABR 1979 4(24)9  
Jordan R.J. Casino, ABR 1981 7(38)31  
Joses Soda Water. Geraldton, W.A. “Pickaxe” TM. ABR 1981 7(40)27, 7(38)31; ABPG (3)44  

Kadina Mineral Waters Kadina, S.A. BCR 1972 3(6)16  
Kangaroo Aerated Waters Co. Vic. “Horse & Rider” TM. AABC 1986 3(23)12  
Kean M. Gormanston & Queenstown, W.A. ABR 1979 4(24)9  
Kearney D. Sydney, c1851-61. DJ 26  
Kelk W. Sydney, c1888. DJ 26  
Kellicks Cordial Factory. Fivedock c1923-30. DJ 26  
Kelly G.B. Sydney, c1861. DJ 26  
Kelly G.E. Hobart, 1877-1885; then Kelly & Co. c1885-c1925; then Tasmia Co. BCR 1972/3 3(2)8; ABR 1979 4(24)8 & 15; AABC 1983 1(5)7  
Kilpatrick (& Cavanagh) Leichhardt, c1887-1898. DJ 27  
King W. Sydney, c1883-1906. “Crown” TM. ABR 1980 6(34)17; AABC 1982 1(5)10; DJ 27  

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La Mert's Effervescent Soda Powder, SG 21-8-1834, 1-10-1836
Lackersteen A.C. Glebe, c1895-96. DJ 27
Lackersteen & Co. Glebe, c1897-98. DJ 27
Lackersteen G.T. Sydney, c1879. DJ 27
Ladd C. Adelaide & Port. ABR 1980 6(32)10; AABC 1983 1(5)16/17
Ladd J. Adelaide Port & Gawler, S.A. ABPG (3)9; AABC 1983 1(6)16/17
Lamb G. Thursday Island, Qld. "Lamb" TM. AABC 1983 1(5)11; Ken Arnold, Collecting Australian Bottles, 1985, 98
Lamb & Buchanun. Imported Schweppes Soda Water. SG 2-2-1830
Lamont Patent. U.K., 1874. Shaped stopper with rubber washer. DJ 43
Lamplough J. Cowra. ABR 1976 2(5)10; SBC 1983
Langworthy & MacDonald. E. Sydney, c1888. DJ 27
Laurence. Korumburra, Vic. "Lyrebird" TM. ABPG (2)43
Laver H. Waterloo, c1877. DJ 27
Lavers J.V. & Co. George St., Sydney, "Est.1845." SH 1-5-1847, 19-6-1847, 2-12-1847, 18-8-49; also c1855-66. DJ 27
Lawrence A. & Co. Sydney, c1887. DJ 27
Laws W.J. Parramatta, c1826-29. DJ 27
Leichhardt & Petersham Aerated Water Co. Leichhardt, c1888. SBC 1983; DJ 27
Letchford W. Fremantle, W.A. "Lion in Shield" TM. ABR 1979 5(27)36; AL 2-11-1885
Leverett C.E. Armidale, c1919-1926. AABC 1986 3(13)22
Leverett C.E. Kyogle, c1928-1983. AABC 1986 3(13)22
Lewinge Bros. & Daly, Campsie c1915-16. DJ 27
Lewis W.H. Donald, Vic. C 1987,42
Lichtner Ltd. Sydney, c1915-16. DJ 27
Lidsdale Aerated Water & Cordial Factory. See J.A. Summons
Lilydale Aerated Water Co. Vic. "Palm Tree" TM. AABC 1984/5 3(4)8
Lilywhite M. & W. Sydney, c1858-1873. DJ 27
Lillyman Moree ABPG (4)15
Lincoln S.S. Wagga Wagga. AABC 1985 3(7)28
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Lindsay H.L. Hay, Orange, Cobarr, Bourke & Hillston. Includes example of Hendrickson bottle ABPG (247); ABR 1977 3(17)35 O/s,C/l/C/-

Lindstrom’s Aerated Waters. Broken Hill. AL 2-11-1985 C/cs

Lion Brewing and Malting Co. (L.B. & M Co.) Ltd, Adelaide. ABPG (3)6 C/i


Lockett Bros. Kiama. ABR 1981 7(41)21 —

Loco Aerated Water Co. Midland Junction, W.A. ABR 1982 7(42)1 C/c


London Cordial Factory. Sydney, c1899-1900. DJ 27

Long W. Ultimo, c1868. DJ 27

Long & Burden. N./Sydney, c1915-30. DJ 27

Long & Seebeck. Kanowna, W.A. “White Feather” TM; ABR 1979 5(39)15 C/c

Loudon & Bath. Marrickville, c1904-08. “LB” TM. DJ 27 C/c

Loughlin & Bellair Wagga Wagga. “Crow” TM. ABPG (4)7 C/c

Loy Bros. Melbourne. ABR 1980 6(35)19 C/i,C/c

Lucas W.B. Paddington, c1890. DJ 27 —

Lumb & Co. Castleford, U.K. Glass Manufacturers. ABPG (1)51 CM/s

Lupton T.J. Hepburn Springs, Vic. AABC 1983 2(10)17 C/i

Macartney & Clare Waterloo, c1864; Macartney J. c1865-71. DJ 28 —

MacKay’s Aerated Water Co. Perth, 1926-1962. BCR 1973 4(3)8 C/c


Maddox C. La Trobe, Tas. ABR 1979 4(24)8 C/c

Magnet Works. N./Adelaide, c1880. ABR 1980 5(30)7 CM/s

Maguire M.J. Broken Hill. AL 2-11-1985 C/l

Maguire N.G. Narranderra. AL 2-11-1985 C/cs

Mahon & Headley. Wagga, AABC 1983 1(5)16/17 C/s

Malarky S. 64 Pitt St. Sydney. Lowes Directory 1844-5 —

Malcolm, A. Corrara Water, Adelaide, c1848-1853. AABC 1982 1(1)32 CM/s

Mally E.O. Broken Hill. AL 2-11-1985 C/l

Man H.E. Broome, W.A. “HEM” TM. AL 2-11-1985 C/c

Manallack F. St. Arnaud, Vic. c1875-1933 “F M” TM. AABC 1988 3(23)10 C/cs


Mann F. Sandgate, Brisbane. “FM in shield” TM. AABC 1984 3(1)6 C/l

Mansfield S. Maryborough, Qld., c1859-date. “Emu” TM. AABC 1983 1(5)16/17; ABR 1981 7(41)20 C/l

Marchant & Co. Brisbane, c1882 onwards; Sydney & Parramatta, 1893-c1930; became Marchants Ltd. 1909. “Slice of Lemon” TM. ABPG (3)8 & 43; ABR 1981 7(41)20; AABC 1982 1(2)31, 1983 3(5)16/17; DJ 28 C/l,C/c,C/fi

Mark Bros. Marrickville, c1889. DJ 28 —

Marks T. Newtown, c1893. DJ 28 —

Marrin A. Braidwood, 7 - c1897. ABR 1981 7(41)21 —

Marrin & Bergman. Balmain, c1885. DJ 28 —

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Marsh T. Harry. Cue & Murchison, W.A. C1987 48
Marshall H. Cue, W.A. “Man & Flag” TM. AABC 1984 3(3)18
Marshall W. Glen Innes, 1888 onwards. ABR 1981 7(41)21
Martin H.B. Renmark, S.A. ABR 1980 5(30)7
Martin J.R. Beverley, W.A. AL 2-11-1985
Martin J.T. Glebe, c1893. DJ 28
Martin R. Surry Hills, c1883. DJ 28
Martin & Co. Balmain, c1887. DJ 28
Mason Bros. Spring St., Sydney. Lamont bottles SH 3-1-1880
Mason S. Wodonga, Vic. AL 31-8-1985
Maryborough, Qld. Aerated Water manuf., book to be published on this subject. Lindsay Balliner, 10 Cran St., Maryborough 4656
Mather A & Sons. Singleton. “Cricketer” TM. ABR 1977 3(15) 19, AABC 1982 1(2)27; ABPG (4)14
Matthews J. Hogben Patent. ABR 1980 6(38)31
Matthews P. Geelong, Vic. ABPG (3)44
Matthews & Howie, Aerated Water Manuf. Geelong. AABC 2(10)17
Mattoni H. Carlsbad, Czechooslovakia. (ex Comp Plats, Vic.). ABR 1976 3(14)18
Mau H.E. Broome, W.A. AABC 1983 2(7)31
Maughams Carrara Water, Reg 1845. ABPG (3)52. ABR 1980 5(30)7 (see Malcolm A.)
Mawer H.W. Ulverstone, Tas. ABR 1979 4(24)7
May & Co. Rockhampton “M & Co” TM. C 1987, 52
Mayo A. 10 Clarence St., Sydney, c1846-1860; with J.V. Laver & Co. c1860 and W.G. Henfrey c1876-1880 DJ 4 & 28
Mayo Watson & Co. Berner St., London ABR 1978 4(22)37
McCormick J. c1890-1912, and Mrs. S.J. c1904-1915 Marrickville. DJ 28; SBC 1983 5(2); ABR 1980 6(34)17
McDonald & Co. Melbourne & Ballarat. “Crown” TM. ABPG (3)45; AL 11-5-1985
McDonald A. Sydney. Low’s Directory, 1847
McDonald M. Melbourne. ABR 1979 4(24)21
McDonnell W.G. Darlington. c1887-88. DJ 28
McDougall J. Brewarrina. BCR 1971 2(3)19
McFall J. Redfern. c1893. DJ 28
McGaw L. Maffra, Vic. ABR 1977 3(16)35
McGee J. Rochester, Vic. AABC 1983 2(7)31
McGrath T. & C.P. Newtown. c1928-30. DJ 28
McGuire T.S. Ultimo. c1890-91. DJ 28
McIntyre F. St. Peters. c1888. DJ 28
McKay W.J. Braidwood c1897-1915, ABR 1981 7(41)21
McLaren E.D.H. N. Sydney, c1916. DJ 28
McLean Bros. Cooktown, Qld. BCR 1971 2(3)18
McLean C. Hobart. ABR 1979 4(24)15
McMahon E. Southern Cross, Vic. (?) “Clover Leaf” TM. AABC 1985 3(5)8

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McSwain Ballarat. “Swan” TM. ABPG (2)43
Meader C.C., See Franklin & Co. Balclava, Vic. “Face & Tumbler” TM. AABC 1984 2(12)28, 1985/6/3(10)19
Mealing J. Mittagong, c1895-1912. Sold to E.A.Dobson. ABR 1981 7(41)21
Mealing Parkes. AABC 1986 3(14)2
Meares R.G. Northam, c1900 onwards. BCR 1971 2(4)24
Mears S.C. Newcastle. “Mermaid” TM. AABC 1985 3(5)8
Megget & Walker. See Newling & Walker
Metal Cap Patent. See Dawbard & Son
Midland Junction Aerated Water Co. W.A. “Rail Loco” TM. AABC 1982 1(1)13
Midlothian Glass Co. Scotland. 20 cases of soda-water bottles. SG 23-12-1843
Miller & Co. Sydney. c1905-07. DJ 28
Mills J. Osory Rd. (State?). ABR 1978 4(23)39
Mills J. Newtown. c1887. DJ 28
Milne A. Surry Hills. c1895-99. DJ 28
Milnes D. & Son. Undercliffe. “Man on Horse” TM. ABR 1980 6(34)17
Mineral Water Depot Sydney. c1897-99. DJ 28
Minnis J. Petersham, c1901. DJ 28
Mitchell Alexandria. c1887. DJ 29
Monk D.J. Ultimo, c1864-67. Alexandria, c1902. DJ 29
Monk’s Vinegar Works, c Alexandria, c1903-19. DJ 29
Monro J. Port Adelaide, ABR 1980 6(32)10; AABC 1983 2(8)31
Moonee Valley Co., Melbourne. AL 11-3-1887. O/s
Moonee Valley Cordial Co. N. Fitzroy, “Horse & Jockey” TM. ABPG (2)43, 1(49), & (2)43; ABR 1977 7(5)19; ABPG (4)8
Moonee Valley Aerated Water & Cordial Co. North Fitzroy, c1889-c1904. Manufactured own bottles as Moonee Valley Glass Bottle Works c1896-c1901 and also supplied Fosters and Victoria Breweries Melbourne. ABR 1977 3(16)21
Moore C.R. Daylesford, Vic. est. 1862. See also Hepburn Mineral Springs. “Pigeon” and “HMS” TMs. ABPG (1)51; ABR 1981 7(40)27, 7(41)12; AABC 1985 3(8)17; 1982 1(2)32
Moore G. Maitland to c1873, then Moore A.F., Darby St. Newcastle c1873-1950. ABR 1979 5(29) 24; C 1987,40
Moore R. Kalgoorlie, W.A. “Crown” TM. AABC 1985 3(8)16
Moore R. (Perth Glass Co.) Perth. AABC 1983 1(6)35
Moore T. Norwood, S.A. ABPG (3) 9
Morgan L. & Co. Redfern, c1855. DJ 29
Morgan S.C. Redfern, c1861. DJ 29
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Morton G.N. Queanbeyan, c1905. “Mans Head” TM. AABC 1982 1(2)39, 1985 3(8)16
Mosley J. York, W.A. “Swallow” TM. ABR 1979 5 (27)12
Mosman Cordial Wks. Mosman, c1915-1916. (See Ferguson) SBC 1982; DJ 29
Mount’s Patent, Melbourne Glass 1878. Ceramic ball & 4 neck indentations. ABR 1976 3(14)13, 1980 6(33)32; DJ 42
Munro J. Sydney, c1840-1854. AABC 1986 3(13)15
Munro T.J. Gawler, S.A. AL 31-8-1985
Murphy E. Ridolls Creek, Vic. “EM” TM. C 1987,46
Murphy G. Sydney, c.1834. DJ 2 and 29
Murphy J.R. & Co. Redfern, c1895. DJ 29
Murray J. Sydney, c1885. DJ 29

Narrabri Ice & Aerated Water Mfrs. 1914-? Brewer & Bottler’s Gazette Nov 24, 1914; SBC 1982; AABC 1987 3(20)10
Neale J.G. Waterloo, c1901. DJ 29
Neil W.T. Surry Hills, c1864-73. DJ 29
Neilson I. 2 Adelaide Pl. Hunter St. later George St., Sydney. P.O. Directories 1834-37; AABC 1982 1(3)10
Neilson. Sarina, Qld. AL 18-2-1985
Nelson Carbonating Co. Ltd. Sydney. Bottle body decorated, top of bottle broken off. AABC 1985 6 3(10)22
Nelson G.H. Brisbane. “Man” TM. AABC 1985 3(5)8
Nelson W. Marrickville, c1887. DJ 29
Newcastle Ice Works (made by J. Ross) ABR 1979 5(27)24; SBC 1982; AABC 1983 3(23)30
Newling Abraham. Parramatta, c1885, ABR 1979 5(27)25; DJ 29
Newling Arthur. Parramatta, c1891. ABR 1979 5(27)25; DJ 29
Newling Bros. Parramatta, c1898-1904; moved from Smith to George St. c1904. “Crossed Muskets” TM. See Newling & Walker, ABR 1979 5(27)25; DJ 6/7
Newling & Page. Redfern, c1908-9. DJ 7; ABR 1979 5(27)24
Newling & Son Brookvale, c1926-1930. DJ 30
Niagra Patent U.K. c1880-90. 2 or 4 “tear-shaped” indentations in neck of a Codd bottle. DJ 41
Nicoll B.B. Sydney, c1893. DJ 29
Nicholls & Co. Camperdown, c1897-1912. DJ 29
Nicholl’s Tasmanian Dandelion Ale Co. Camperdown, c1913-16. DJ 29
Nobel T.W. Redfern, c1887 on. DJ 29
Noblett. Talbot, Vic. BCR 1973 4(2)5
Notan F.W. Holbrook. AABC 2(7)31
Norris I. Sydney, c1847-1871. Low’s Directory 1847; DJ 29
Norris & Footner, Port Pirie, S.A. became Moyle W.H. & Co after c1886.
AABC 1987 3(18):26  
Northam Brewery & Refrigeration Co. c1900-28 BCR 1971 2(4):24  C/c
N.S.W. Aerated Waters Pty. Ltd. Newcastle & Wallsend; est. G.E. Rodman
1865. ABR 1981 7(41):20  
Nugent R. St. Leonards, c1890. DJ 29  
Nute J. Marrickville, c1916. DJ 29  
Nye R. Sydney, c1855. DJ 29

O’Connell J. Bendigo, c1918-1963. “J.O.C.” TM. ABPG (3)7; KA 99  C/i
O’Connor Bros. (G.J. & T.) Redfern, c1885-1908. “Harp” TM. ABR
1979 5(23)14, 5(27)24 and 5(28)14; AABC 1984/5 3(4)17, 1985 3(9)13.
DJ 29  C/c,C/i
O’Connors Cordials. Casino, c1956-date. ABR 1981 7(41):21  
O’Connors G.H. Concord, c1893-1902; Ashfield, c1906-11; Newtown,
c1912-16. DJ 29  
Oertel C. Sydney, 1891-1903, moved Alexandria 1903-29. “Whale” TM.
SH 11-1-1900; ABR 1981 7(41):14; AABC 1983 1(5)16/17; DJ 30
See also Dalin & Oertel  
Oertel Ltd. Alexandria, c1927-30. DJ 30  C/s,O/s,CD/s,C/c,C/cs
Okey’s Cordial Factory. Leichhardt, c1928-30. DJ 30
Oliver & Co. Broadmeadow, W.A. “Bow and Arrow” TM. AL 18-2-1985  C/c
Oliver & Co. Paddington, “Australian Coat of Arms” TM. ABR 1979
5(25)8, 1980 6(34)17; DJ 29  C/c
O’Neill Echuca. AABC 2(7)31  C/c
O’Neill Bros. N. Fitzroy. “ONB” TM. ABPG (2) 44 and 49; ABR 1981
7(41)10, 7(40)27; AABC 1983 2(7)31  C/c,C/i
Orange Crush Co. (Aust.) Ltd. Sydney, c1926-30. DJ 30  O/s,C/c,C/i
O’Rourke & McCormick. Marrickville, c1887. DJ 30  
O’Rourke J. Marrickville, c1888. DJ 30  
O’Sullivan. Queanbeyan. ABR 1979 5(28):31  C/c
O’Sullivan & Purcell. Melbourne. “OSP” TM. ABPG (2)47 & (3)45;
AABC 1985 3(8)12  C/c,O/s,C/l
Oswald D. Eaglehawk, Vic., c1909-c1920. Later Oswald J.R.,
c1920-1967. KA 100  C/c,C/i
Oswald & Metcalf Eaglehawk, Vic., 1904-1909. KA 100  O/s,C/c
O.T. Ltd. (J. Dixon & Co.) Sydney, c1911-30. DJ 29; AL 19-7-1987  C/i
Owen S. Adelaide. ABR 1980 5(30)9  CM/s
Owens F. Armidale, c1884-c1907. Kilner Patent. DJ44; ABPG 1(46); BCR
1973 4(4):10; AABC 1985 3(9)27  C/l,C/s
Oxley W.A. Sheffield U.K. “WAO” TM. Valve Patent. DJ 39; ABR 1981
7(38)31  C/c

1983 2(8):31; ABPG (3)45; AL 11-3-1987  O/s,C/l
Paragon Aerated Water Co. Sydney, c1889. “Horse & Rider” TM. AL 20-4- 
1985; DJ 30  C/c
Parker I. Sydney, c1855. DJ 30  
Parkinson & Co. Wollongong, 1883 onwards. ABR 1981 7(41):21
Parkinson W. Marrickville, c1888. DJ 30
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Paterson Bros. Kapunda, S.A., c1890. ABR 1980 (30)8
Peel Bros. ( & T. Peel) Sandhurst (Bendigo), c1866-84. KA 102
Pegrum Bros. (C & H) Redfern, c1887-1889. Also Hume & Pegrum, c1879-1898. DJ 17, 26 and 30
Penny H. Sydney, c1877-90. DJ 30
Penrose J. Silvertown. AABC 1983 1(4)31
Perth Glass Co. Perth. "Horse-shoe" TM. AL 20-4-1985
Peters L. Bourke. "Key" TM. AABC 1984/5 3(4)15
Petersham & Leichhardt Aerated Water Works, c1888. "EWL" in shield TM. See also Leichhardt & Petersham DJ 31
Petiggrew C.H. Camperdown, c1893. DJ 30
Pfeiler Melbourne. "Bell" TM. ABPG (3)8; AABC 1983 2(10)31
Philips P.J. Albury "German Eagle" (to 1914) then "PJB" TM. ABPG (4)14; C 1987,36
Phillip E. Balmain, c1885. DJ 30
Phillip H.J. Balmain, c1870-90. DJ 30
Phillips A. Sandhurst (Bendigo), c1861-1907. "AP" TM. KA 104
Phoenix Aerated Water, Co., see Abbott
Pickering C. Sydney, c1833. DJ 30
Piddington G. Camperdown, c1890. DJ 30
Piesse F. & C. Katanning & Perth, W.A. "BCD" TM. BCR 1972 3(3); AABC 1983 1(5)16/17; AL 31-8-1985
Pike W. & Son. Queanbeyan, c1900 onwards. "P" TM. BCR 1971 2(5)20
Pilgrim G.W. Auburn. "Take me Home" TM. BCR 1972 3(5)14
Pioneer Aerated Water Co. Ltd. (F.F. Seebeck) Coolgardie, W.A. "Tree or Fern" TM. ABR 1979 5(29)14
Pioneer Aerated Waters, see Smith F.A. Gladstone, ABPG (1)49
Pioneer Works. Camp St. Sydney. ABR 1979 5(28)31
Pitt & G. Sons. Port Augusta, S.A. ABR 1980 5(30)8
Pivot. Kalgoorlie. "Horse" TM. ABR 1981 7(38)31, 7(41)13, 1982 7(42)21; C 1987,32
Pleyen A. Mrs. Leichhardt, c1893-97. "A.P. Brand" TM. No. 5254, 16-10-1895. DJ 30
Plummer A. Est 1874, became Plummer Bros. 1891-1893; Plummer & Murphy 1893-1917. AABC 1987 3(17)15.
Plummer J. Melbourne. "Thistle" TM. ABPG (2)47 & (3)44; AABC 1983 2(8)12
Plummer & Murphy Co. Melbourne. "Castle" TM. ABPG (3)7, (2)44; ABR 1977 3(14)9, 1981 7(39)4; AABC 1983 2(7)31, 2(8)12
Pocock C. Darlington, c1893-1915, moved to Camperdown, c1913. "Horseshoe" TM. AL 18-2-1985; DJ 31
Pocock & Co. Camperdown, c1901-1919. "Horseshoe" TM. AL 18-2-1985; ABPG (4)8; DJ 31
Pollock A. Nowra c1875 on. ABR 1981 7(41)21
Pollock Bros. Nowra. Sand-blasted name. ABPG (3)9
Port Adelaide Mineral Water Co. Ltd. “PAMW Co.” TM. ABPG (3)9; AABC 1987 3(19)28
Port Augusta Brewery, S.A. NBR 1974 1(5)15  
Potter A.H. Redfern, c1887. DJ 31  
Potter's Excelsior Cordial Wks. Sydney, c1921. DJ 31  
Pounds Ross, Waterford, Ireland, c1855 ABR 1978 4(23)6  
Powell R. Sydney, c1857 AABC 1986 3(13)15  
Prahan Ice & Aerated Water Co., Melbourne. AABC 1987 3(17)12. See also Dixon J.  
Pratten H.E. & Co. Ashfield, c1889. DJ 31  
Premier Aerated Water Wks, Edwards & Murphy, Rockhampton. “Brolga” TM. AABC 1983 1(5)16/17  
Prescott Duffell & Co. Annandale, c1899. DJ 31  
Presser H. Murtoa, Vic. AL 19-7-1987  
Prestage E.W. Balmain, c1867-71, DJ 31  
Priddle G.F. Bros. Queenscliff, Vic. “Lighthouse in oval” TM. ABPG (3)43; ABR 1976 3(15)9, 1979 5(28)30; AABC 1985 3(7)17  
Pritchard G. Bendigo, c1895-1922. “Coat of Arms” TM. BCR 1970 1(4)5; ABPG (2)43; AABC 1983/4 2(10)31; KA 107  
Puddicombe W.I. & Co. Camperdown, c1904-06. DJ 31  
Pure Water Process Co. Melbourne “H2O” TM. C 1987,49  
Purser T.J. Rockdale, c1904-12. DJ 31  
Port's Celebrated Double Soda Water. 13, St. Mary at Hill, City, London (after c1859), 23, Love Lane, Eastcheap (from c1837). ABR 1978 4(23)12  
Purvis T.J. Muswellbrook, c1910-1913. AABC 1987 3(20)7  

Quadrent G.R. Alexandria, c1855-1889. DJ 31  
Queuele Bros Macedon Waters, Vic. “QB” TM. C1987,45  
Quelch J. Redfern, c1864. DJ 31  
Quigley J. Lismore, “Aerated water equipment” TM. ABR 1980 6(34)17  

Rankin E. Lockhart. “Kangaroo” TM. ABR 1980 6(34)17  
Rankin T. Granville, c1918-19. DJ 31  
Rayopsa, (G.L. Adamson & Co.) Redfern, c1929-30. DJ 31  
Read & Campbell. Sydney, c1912. DJ 31  
Reading H.E. & Sons. Bunbury W.A., c1893-? Valve and hybrid valve patents. BCR 1973 4(4)12; AABC 1985/6 3(10)5, 1986 3(12)26, 3(14)20;ABPG (1)46  
Redman G.E. Sydney & Newcastle, c1865. See N.S.W. Aerated Waters Ltd. ABR 1981 7(41)20, 1979 5(28)13  
Red Hand Cordial Works Ultimo, c1888-1893. “Hand” TM. DJ 31  
Redheart. Ultimo, c1837-1888. DJ 31  
Red Lion Brewery Co. Hay, “Rearing Lion” TM. ABPG (3)44, 52. ABR 1980 6(31)18, AABC 1982 1(1)27, 1983 1(5)16/17  
Reed Bros. Crystal Cordial Works, Bendigo, c1908-1936. ABPG (3)7; KA 110  
Reedman. Sydney, c1885. DJ 31  
Reeves J. (later Drysdale) Geelong, c1860 on. ABR 1981 7(41)21  
Reeves R. Warrnambool, Vic. c1931-date. ABR 1981 7(41)21  

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Reeves R.V. Hamilton (State?) Ken Arnold, Collecting Australian Bottles, 1985, 93
Reilly R. Redfern, c1892. DJ 31
Reilly R.S. Bathurst, c1881. SBC 1982 5(2)
“Reliance” Valve Patent. ABPG (2)42. See also Rylands. DJ 39
Reliance Patent. Rylands, U.K. 1886. Pair of internal ridges to hold marble in Coddl bottle. See also Acme. DJ 41
Rendell T.M. Kadina, S.A. BCR 1972 3(6)16
Resch E. Broken Hill & Cootamundra. “Barrel” TM. ABPG (2)47; AABC 1983 2(8)8
Richards J. St. Leonards, c1887-88. DJ 31
Richards S. N. Sydney, c1888-1920. “SRNS in Circle” TM. ABR 1979 5(25)11; DJ 31
Richardson & Co. Balmain. AABC 1982 1(2)31; DJ 31
Ride W. Benalla, Vic. “Sheep in shield” TM. ABPG (1)46, (3)45; ABR 1981 7(41)78; AL 11-3-1987
Riese L. Marrickville, c1877. DJ 31
Riess L. & Co. Sydney, c1893-95. DJ 31
Riley (& Co. Bros.) Sydney, c1884-1913. DJ 31
Riley T. Sydney, c1886-87, “Shamrock Reg”. 1886. DJ 31
Riley Patent U.K. 1892. Internal screw with chisel-shape finger-grip stopper. DJ 44
Riley & Hopkins Sydney, c1850. See Smith J. DJ 31
Risbey & Walker Parramatta, c1899-1901. DJ 31
Riverine Brewery Deniliquin. “Rooster” TM. AABC 1985 3(8)17
RNG Brewing Co. (Tasmania?) ABR 1977 3(16)35
Robert of France, Manufacturers of glass bottles, London AABC 1982 1(2)32
Robert I. Enmore. DJ 31
Robertson W. Penrith, “Castle” TM. SBC 1983 5(2)
Robinson H. & Sons, Warragul & Morwell, Vic, Robinson W. c1886-1888; (Mrs) Robinson M. c1888-1908; Robinson T. c1908-1912. See also Thorneley M. and Daniels F. “Rooster” and “While I Live I Crow” TM. ABPG (3)9, (3)43 ABR 1977 3(15)9; AABC 1985 3(9)5/7
Robinson M. Newtown, c1889. DJ 31
Robinson R. Manjimup W.A. c1915-58. BCR 1973 4(4)4
Roche H. Sydney, c1883-92. DJ 31
Roche M.J. Melbourne, c1847-c1862. ABR 1978 4(23)14
Rockdale Steam Mineral Wks. Rockdale, c1900-13. DJ 31
Rodgers (Rodgers) & Co. Loddon and Fryers Creek, Vaughan, Vic. c1870-1908. AABC 1985 3(5)10
Rodgers (Rodgers) W. Launceston. NBR 1974 1(4)12; ABR 1979 4(24)9
Roebourne Hotel, W.A. “Eclipse Patent. ABR 1982 7(42)31
Rogers: See Rogers above.
Roneymore & Robertson. Sydney, c1896. DJ 31
Rose H. C. & Co. Balmain, c1885. DJ 31
Rosel A. Echuca, Vic. “Aborigine & Boomerang” TM. ABR 1981 7(38)31; AABC 1985/6 3(10)4
Ross Belfast, Ireland, ABPG (1)51; (3)42
Ross J. Camperdown Glass Works, c1866-94. Soda-water bottles at 20/- per gross. SH 12-1-1870; DJ 35
Ross & Buchanan. Warwick, Qld. “R. & B” TM. BCR 1971 1(6)19
Ross & Clinch. Pyrmont, c1882. DJ 31

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Rowe & Co. Sydney, c1883–84. DJ 31
Rowlands & Lewis. Sturt St., Ballarat, c1854-c1872. ABR 1978 4(23)14 O/s
Rowley J.S. Tenang, Vic. AABC 1982 1(2)32 O/s
Rudge F. B. Latrobe, Tas. ABR 1979 4(24)9 C/c
Runting C. Bendigo, c1891-1911, "Mountain" TM. ABR 1980 6(35)9; KA 112
Russell J.C. 275 Pitt St. Sydney, 1840-45. Started Soda & Lemonade manuf. SH 3-1-1840; Sold to G. Evans SH 4-9-1845; AABC 1982 1(3)10; Low's Directory 1844-5 O/s
Russell R.M. Sydney, c1854. DJ 31
Ryan P. Burrowa, Vic. "Clover Leaf" TM. ABPG (4)7 C/c
Ryan T.O. & Sons. Armidale. AABC 1986/7 3(16)10 C/c
Ryan W.E. Cairns. ABR 1979 5(28)13 C/l
Ryan & Co. Port Adelaide, ABR 1980 5(30)8 CM/s
Ryan & McDonald Adelaide, ABR 1980 6(32)12 CM/s
Rylands (Barnsley U.K.) Valve Patent, 1882. ABR 1979 5(29)6, 1981 7(38)31; DJ 39 C/c

S.A.B. & Co. Laura, S.A. AABC 1983 2(8)31 CM/s
S.A. Brewing Co. Port Augusta, S.A. NBR 1974 1(5)12 C/l
Safe H. Koondrook, Vic. "Safe" TM. AABC 1983 2(10)21 C/c
Sainsbury S. Strand London, c1842-c1891. ABR 1978 4(23)6, 1982 7(42)27 O/s
Salmon M.G. Melbourne. "Truly Australian" and "Palm" TM. ABPG (3)44; ABR 1978 4(23)39 O/s,C/c
Samuels J. Sydney, c1908. DJ 32 —
Sanderson & Co. Camberwell, Vic. "Lion" TM. AABC 1983 2(7)31 O/s
Satchel C.W. Waterloo, c1921-30. DJ 32 —
Sawtell & Hauritz Brisbane. "Sunburst" TM. ABPG 4(13) C/cs
Saxby G. Manning River (Taree), c1864 to date. ABR 1978 4(23)39, 1981 7(41)21 C/li
Sayers F.E. Glen Innes, c1901 onwards. ABR 1981 7(41)21 —
Schramm & Co. Adelaide "OK" TM. AL 10-5-1986 C/l
Schweppes 75/9 Margaret St. London, 1793-1832; 51 Berners St. London, 1832-1897; Schweppes & Co., 1897 onwards, 51 Berners St. London, also Oxford St., London and elsewhere. "Fountain" TM. Imported by Lamb & Buchanan, SG 2-2-1830. See also Cummings Hotel. ABPG (2)43, (3)44; ABR 1978 4(23)7, 1981 7(37)4, 18 Pyramid, O/s, CD/s,S/s, C/c,C/s
Schweppes J.H. & Co. Sydney, c1884-1930. Became Schweppes Ltd. 1899. DJ 32 —
Scott M. Menzies, Qld. "Anchor" TM. AABC 1984 2(11)14 C/c
Seebeck G.F. Perth, c1899-1904. "Fern" TM. ABR 1979 5(29)14, 1981 7(41)10; AABC 1982 1(2)32 O/s,C/c
Segan L. Sydney, c1869-70. DJ 32 —
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Setlers Club, Mildura. ABR 1977 3(17)10

Sharpe J. Ultimo, c1887. DJ 32

Sharpe Bros. Glebe, c1892-1930. Depots Kogarah, N.Sydney, Parramatta, Burwood, Woolahra. DJ 32


Shaw E.P. Camden, W.A. "Dog" TM. ABR 1980 6(36)50; AABC 1983 2(7)31

Shaw's Patent See Clayton. ABR 1981 7(38)31

Sheeky C. Goulburn, c1914 on. Australian Cordial Maker 2-11-1914

Sheeky T.J. Yass & Goulburn, c1870 on. "Britannia & Key" TM. ABPG (3)43; ABR 1981 6(33)1, 7(41)21, 1982 7(42)31; AABC 1982 1(2)28, 1984 3(1)15; 1985 3(8)16 S/s, C/l, C/es, C/c, C/C

Shelley J.A.M. Broken Hill, "S on Shell" TM. ABPG (3)6; AABC 1985/6 3(10)19

Shepherd & Co. Brisbane ABPG (4)8

Shepherd J.T. Geraldton, W.A. "Star" TM. ABR 1982 7(42)29, 1981 7(41)11; AABC 1982 1(2)29

Short & Son Gympie, Qld. "Monkey" TM. AABC 1985 3(5)8

Sidall Echuca, Vic. "Swallow" TM. AABC 1983 1(6)34

Simmons A. Armidale, c1916-1919. DJ 32

Simmons C. Armidale, c1912-1917. "Crown" TM. and "CS" or "GRB" TMs. AABC 1986 3(11)18, 3(14)2, 3(15)13 C/c, C/c


Simpson D.P. & Co. Marrickville, c1897. DJ 32

Sintzel Orange & Co. Sydney, c1928-29. DJ 32

Skinner G & Co. North Tumbulgum, c1888; Murwillumbah c1891, now Skinner, Lowes & Co. Ltd. ABR 1981 7(41)21

Skittle (or flat-footed Hamilton). Shaped like a skittle. Patented by E.M. Stone 1891, but shape previously used. DJ 40 S/s

Smallhorn E.G. Hay, c1872-1974. "Lion or Monogram" TM. ABR 1980 6(34)17; AABC 1983 1(5)16/17

Smith A. & Co. Sydney, c1885. DJ 32


Smith C.A. Ashfield, c1911. DJ 32


Smith E. Parramatta, c1888-40. DJ 32

Smith E.J. & Co. Sydney, c1900. DJ 32

Smith F.A. Pioneer Aerated Waters, Gladstone, Qld. "Scales" TM. ABPG (1)49 C/l

Smith H. Pyrmont, c1885. DJ 32

Smith H.T. Sydney, c1884. "H.T.S." TM. ABR 1977 3(16)33; 1982 7(42)26; ABPG (2)42; DJ 32 C/hu


Smith James. Sydney, c1840-c54. 11 Pitt St. SH 18-9-1840; 45 Upper Pitt St. SH 13-1-1842; SH 23-11-1843; Low's Dir. 1844/5; Smith & Watson Castlereagh St. T.Pearson Aust. Cord. Maker 1899; Bought Watson's interest SH 1-4-1847; Became Riley & Hopkins, 20 Pitt St. c1854.

Huntsdon, Aust. Cord Maker Sept. 1904

Smith John. Chippendale, c1882-88. DJ 32

Smith John. Sydney, c1844. AABC 1986 3(13)15

Smith Jonathon. Sydney. Low's Directory 1847

Smith Jeremiah. Balmain, c1882. DJ 32

Smith & Pratten. Croyden, c1888. "Horse" TM. DJ 32 C/l

Smith & Watson. See Smith, James

Smyth & Co. Warwick, Qld. "S" TM. BCR 1971 1(6)19 C/c

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Snewin & Dale. Petersham, c1885. DJ 32
Snowdrop Mineral Waters. Williamstown, S.A. See Clark H. & Co. ABPG (1)47; AABC 1985/6 3(10)30
Soda Water Powders imported. SG 17-12-1831, 21-8-1834, 1-10-1836
Solomon & Bergman. Balmain, c1897. DJ 32
Southan W. Sydney, c1887. DJ 32
Southan & Sims. Surry Hills. DJ 32
South Gippsland Cordial Co. Korumburra, Vic. “Lyre bird” TM. ABR 1981 7(41)29
Spa Waters, See Innot. ABPG (2)42
Spain J.G. Kyneton, Vic. “JGS” TM. AL 7-1-1986
Spalding & Co. Sydney, c1890-1891. “Lion and Standard” TM. SBC 1982; AL 17-2-1985; DJ 32
Sparkling Mineral Waters. Cowra. “NC” TM. AL 7-1-1986
Spicer J.A. “Horse-shoe” TM. E.T. thought to represent Elizabeth Town, Tas. AABC 1984 3(3)6
Sprowell Bros. & Ranclaud. Sydney, c1916. DJ 32
Spry E. See C.R.Goulding, Prahan, Vic
Stabback W.S. Orange. BCR 1971 2(319)
Stanbury W.F. Wilcannia. AL 2-11-1985; ABPG (4)12
Stannard & Co. Steam Works, Redfern. DJ 32
Standard Manuf. Co. Sydney, c1895-97. DJ 32
Stapples G. Paddington, c1900. DJ 32
Starkey J. Sydney, c1875-1912. “Star & Key & Rampant Lions” TM. & “Coat of Arms with Star and Key” TM. ABR 1979 5(25)30, 1980 6(34)17; AABC 1982 1(2)32; DJ 10-11
Starkey W. Elizabeth St. Sydney, c1838-45; Castlereagh St. c1845-91; (See J. Starkey & J.T.Brogden). DJ 10-11; Loundes Directory 1847
Starkeys Ltd. Pillip St. & Redfern, Sydney, c1912-30. See Starkey J. & W. DJ 10-11
Starling W. Dalby, Qld. “Bird” TM. AABC 1984 2(12)35
Steadman T. Sydney, NSW Calendar & P.O. Directories, 1834-1837
Stevenson & Caw, Manly, c1890. DJ 33
Stevenson H.E. Manly, c1891-1907. DJ 33
Stevenson G.W. Kilmore, Vic. AABC 1982 1(2)27
Steward & Hunter Bendigo, Vic. c1914-17. “Greyhound” TM. BCR 1970 1(4)5; ABR 1980 6(35)9; KA 120
Sirlng A. & Co. Sydney, c1922-30. DJ 33
Stokes T. Bunbury, W.A. “Kangaroo” TM. AL 2-8-1986
Strike G.A. Chatswood, c1902. DJ 33
St. George. Croydon, c1900. DJ 33
Stocker W.S. Moonta, S.A. BCR 1972 3(6)17; AABC 1983 2(8)26
Stone W. Sydney, c1865-66. DJ 33
Stuart F. (& Harley) East Sydney, c1882-1887. DJ 33
Styles G. Surry Hills, c1855-1866/9. DJ 33
Summerfield & Clare. Sydney, c1864. DJ 33
Summons C. & J. Parramatta, c1890. DJ 18/19
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Summons E. Liddale, c1875. ABR 1981 7(41)21; DJ 18/19
Summons E. Parramatta, c1884-91. Liddale Aerated Water & Cordial Factory, Liddale, 1891-1921 ABPG 1(48); DJ 18/19
Summons J.A. or J.S. Liddale. "Coal Miner" TM. ABR 1979 5(25)9; DJ 19
Summons James. Surry Hills, c1877-91. DJ 18/19
Summons John. Surry Hills, c1873-76. DJ 18/19
Summons & Co. Sydney. "Kangaroo" TM. ABPG 2(42, 47; ABR 1979 5(27)25, 1981 7(41)26; AABC 1982 1(1)36,1(6)13; DJ 18/19
Summons & Blackman. Surry Hills, c1884-91, DJ 18/19
Summons & Graham. Parramatta, c1892-1930. Branch in Liverpool (Summons E.) 1911. "S & G" TM. SBC 1982; AABC 1982 1(6)14; AL 31-8-1985; DJ 18/19
Summons & Whiddon, Sydney, c1891-93. DJ 18/19
Sutton C. Murrumburrah. "Kangaroo" TM. ABR 1981 7(39)31; AABC 1985 3(8)9
Sydney Cordial & Aerated Water Co. Campdown, c1892-1903. DJ 33
Sydney Mineral & Syphon Soda Water Co. Newtown, c1890. DJ 33
Sydney Volcanic Aeration Co. Ltd. Sydney, c1893-1903. DJ 33

T & S Cordials, Sydney, c1929-30. DJ 33
Tait T.C. Masonic Hotel, Adelaide? AABC 1983 2(8)31
Talbot & Co. Ipswich, Qld. AL 20-4-1985
Tanner F.C. Canterbury, c1896-1908. DJ 33
Tanner & Co. Croydon, "3 Stars" TM. ABR 1980 6(34)17; DJ 33
Tasmanian Dandelion Ale Co. "2 men & bottle" TM. ABR 1980 5(30) cover
Tasnia Aerated Waters (amalgamation of Kelly & Co. & Weaver & Co.) Hobart, c1925. Flat-sided Codd. AABC 1983 1(5)7
Taylor H. Melbourne. "IT" TM. ABPG 3(66; AABC 1984/5 3(4)17; AL 19-7-1987
Tetlow H. Launceston. "Kangaroo" TM. AABC 1984 3(2)14; ABR 1979 4(24)7
THERAPEUTIC MINERAL WATER. A. NBR 1974 1(5)13
Thomas F. & E. Inverell, AABC 1982 1(2)28
Thomas R.G. Liverpool, c1927-30. DJ 33
Thompson A. Sydney. Imported soda-water engine, SG 17-1-1832
Thompson C. Queensstown & Gormanston, Tas. ABR 1979 4(24)7
Thompson's Superior Aerated Lemonade. U.K. ABR 1978 4(23)6
Thompson W. Sydney, DJ 33
Thorne W.M. Birkenhead, S.A. "Lighthouse" TM. NBR 1974 1(5)15
Thornhill & Dillon. Mackay Qld. BCR 1971 1(6)19
Thornley, M. See Robinson, H.
Thorton J. King St. Sydney. Started soda-water works SG 4-1-1831, 9-2-1832; 27-9-1832; Imported soda-water engine, SG 9-2-1832
Thorton S.P. Lithgow. Bought T. Young & Co. "Galloping Horse" TM. ABR 1979 5(27)34; AABC 1983 1(5)16/17
Three Lamps Aerated Waters Mfr., Vance & Ross Sydney, AABC 1983 1(5)10
Thrower W.J. Launceston, c1886 on. ABR 1979 4(24)8, 1981 7(38)30
Tindall C. Beaconsfield, Tas. "Locomotive" TM. ABR 1979 4(24)7; AABC 1984 3(36)
Tip Top. Port Pirie S.A. "Pyramid" TM. ABPG (2)47
Toomey's Ltd. Sydney, c1902-30. "Stag" TM. ABR 1977 3(16)15, 1980 6(34)17; DJ 33
Towell J. Seidlitz and Soda Powders imported.SG 25-1-1827
Townsend & Robertson. Boulder City, W.A. "Pipe" TM. AABC 1985/6 3(10)31
Tral J.J. Geelong ABR 1981 7(40)27
Treach & Co., Bombay, India. 25-4-1987
Tresscot C. & Co. Newtown, c1887-1891-1901. DJ 38
Trood T. & Co. Melbourne, "Health & Purity" TM. ABPG (2)49, (3)9; ABR 1981 7(41)10; AABC 1983 1(5)16/17
Tucknot C. Euroa, Vic. "Rams Head and Man on Barrel" TM. ABR 1977 3(15)9, 1979 5(27)34
Tutcher W.T. Newtown, c1884-85. Moved to Echuca, Vic. DJ 33

Union Cordial Works Bendigo, Vic. (D. Egan Pte.) "Handshake" TM. c1905-1919. ABR 1980 6(35)8, 9; AABC 1984 2(11)16; KA 122; Ken Arnold, Collecting Australian Glass Bottles, 1985, 95

Vallet Patent (Similar to Hogben) 1875. Weighted stopper with rubber washer. BCR 1971 1(6)9; DJ 43
Valve Patent. D. Rylands, U.K. 1882. ABPG (2)42; DJ 39
Vestergood A. Mackay, Qld. ABR 1980 6(31)31
Victoria Hotel, Roebourne W.A. NBR 1974 1(4)7
Victorian Artillery. Melbourne "Bomb" TM. ABR 1981 7(40)29; ABPG (2)43
Victorian Seltzer Waters, Ballan, Vic. "Crown" TM. ABPG (2)49
Volcanic Aerated Waters Co. (Ferguson W.A.) Wellington. "Syphon" TM. ABR 1981 7(41)9; AABC 1982 1(2)28
Volcanic Co.  Maitland. See Morris L.  

Walker J.  Sydney, c1876. DJ 34  
Walker S. Perramatta, c1885-c1892. DJ 34  
Walker S. & Co. Perramatta, c1902-03. DJ 34  
Walsh J. Waverley, c1896-98. DJ 34  
Walsh John Leamington, U.K.  ABR 1978 4(23)9, 1982 7(42)27  
Ward W. Sydney, c1877. DJ 34  
Warragul Cordial Co., Vic... "Xtra" label. AABC 1985 3(9)9  
Watkins W. Boulder City, W.A. “Clover Leaf” TM. AABC 1982 1(2)27, 1(5)16/17, 1985 3(8)9  
Watson W. Sydney, c1855-65. DJ 34  
Watson & Young, Prize Medallion Minerva. Albury & Albury-Corowa. ABPG (1)47; AL 25-4-1987  
Watt W. Sydney, c1834. DJ 34  
Weary A.L. Quirindi, c1913 onwards. ABR 1981 7(41)21  
Weaver & Co. Hobart, c1872 on. BCR 1971 1(6)22, 1972 3(2)10; ABR 1979 4(24)6;15; AABC 1984 3(2)14  
Weaver & Lock Pty. Ltd. S. Perth, c1919-date. BCR 1973 4(3)20  
Webb Bros. Aerated Waters Port Fairy, Vic. AABC 1983 2(7)31; AL 19-7-1987  
Webb F. Sydney, 1873 DJ 34  
Webb J. Aerated Waters Islington, London, c1876. ABR 1978 4(22)37  
Webber R. Newtown, c1895-96. DJ 34  
Webster R.C. Sydney, c1902. DJ 34  
Weeks & White Toorak, Vic. ABR 1978 4(23)39  
Wensley H. Parramatta, c1913-15. DJ 34  
Weir T.C. Hill End ABPG (4)10  
Wesley Darlington, c1873. DJ 34  
Westlake J.L. Marrickville, c1888-89. DJ 34  
Wharton J. Bendigo, c1879-1888. Then became Cohn-Bros. AK 125  
Wheeler F. Alexandra & Mansfield, Vic. “Came” TM. ABPG (2)47, 3(4)5; ABR 1981 7(41)12  
Whitehouse T. Crystal Fountain Works, Rockhampton, Qld. c1885 on.  "Fountain" TM. BCR 1971 2(1)12  
Widger H. Marrickville, c1911. DJ 34  
Wilce W. MacDonaldtown, c1887-1917, moved to Newtown c1895. Wilce’s Cordial Wks, c1912. ABPG (2)47; ABR 1976 2(5)12, 1977 3(16)15,1979 5(27)24; DJ 34  
Wilcox Bros. Dandenong, Lilydale & Frankston, Vic. “Palm tree” TM. ABPG (3)6; AL 19-7-1987  
Wilkie D. Balmain, c1899. DJ 34  
Wilkins J. Sydney c1887-1889. Wilkins Cordial Works c1907; Wilkins Manufacturing Co. c1917. DJ 34
William J. Sydney, c1868-69. DJ 34  
Williams J. Sydney, c1873-76. DJ 34  
Williams J. Vaughan, Vic., later Adelaide, c1854 on. ABR 1981 7(41)21  
Williamson. Redfern. c1855. DJ 34  
Wills S. 7 George St. Sydney (Sold Sodawater ex “Admiral Cockburn”) SG 16-10-1819  
Wilmot G. See Colac Aerated Waters  
Wilson T. Collingwood, Vic. “T.W” TM. ABR 1981 7(41)14; AABC 1985 3(8)8  
Wimmers Cordial & Aerated Waters. Nambour, Qld. c1909 to date. AABC 1984 2(11)28; ABR 1980 6(34)35  
Winkler R.F. Glebe, c1867. DJ 34  
Wolstenholme Aerated Water Co. W. Maitland, c1902 on. (Took over Volcanic Co. 1902) “W.C”. TM. ABR 1981 7(41)20; AABC 1982 1(2)28  
Wood & Clifton Newcastle, c1872-1879. See also Clifton F. & W. AABC 1983 1(4)25  
Woodroffe (or Woodroffe) W. Norwood, S.A. c1878 (cordials) and c1898-date (aerated waters). “Spinning Top” TM. ABPG (1) 49, (3)6; NBR 1974 1(5)15; ABR 1981 7(41)20; AABC 1984 3(3)14  
Worth G. Guildford, Vic. BCR 1972 3(3)17  
Wrather A. Sydney, c1869. DJ 34  
Wrestly A.C. Sydney (?), c1868. DJ 34  
Wright D. Petersham, c1892. DJ 34  
Wright & Pannifex, Prahan, Vic. “Shield” TM. AABC 1982 1(2)32; AL 19-7-1987  
Wy Wy Co. Armcliffe, c1921-30. Wy Wy Beverage c1924. DJ 34  

Yack Crystal Spring Co. Yackandandah, Vic. ABR 1981 7(37)31; AABC 1983 1(6)32  
Yarrow F. Surry Hills, c1885. DJ 34  
Yarrow W.H.T. Hughendon, Qld. “Sheep” TM. AABC 1(5)10  
York G. See Rosella Aerated Waters  
Young A. Redfern, c1884-87. DJ 34  
Young T. & Co. Lithgow, c1875 onwards. See also Thornton S.P. “Horse” TM. ABR 1979 5(25)9, 1980 6(34)17, 1981 7(41)21; AABC 1982 1(1)39  
Young & Stewart Sydney, c1926-30. DJ 34  
Youngman E. & Co. Sydney, c1840-50s. DJ 34  
Yoxall Cordial Co. Blayney, c1928-1939. SBC 1982  
Yoxall J.P. (See also Yoxall Bros.) Wangaratta, Vic. “Arm and Sword” TM. ABR 1981 7(41)13; AL 7-1-86  

Zeitsch Bros. Grafton. AL 31-8—1985  
Zetz Spa Pty. Ltd. Sydney, c1900-1908. Handled by Tooth & Co. DJ 34  
Zyp Aerated Waters. Paddington, c1924-1930. “ZYP” TM. DJ 34
APPENDIX 1A

APPENDIX 1A
LETTERED AND PICTORIAL TRADE MARKS FROM APPENDIX 1

Appendix 1A is an extraction of lettered and pictorial trade marks from Appendix 1. The dates listed refer to the information known about the manufacturer. These dates do not necessarily correspond to the period of use of the trade mark.

<table>
<thead>
<tr>
<th>TRADE MARK</th>
<th>DATE</th>
<th>MANUFACTURER</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;A.D&quot;</td>
<td>-</td>
<td>Deane A. &amp; Co.</td>
</tr>
<tr>
<td>&quot;A.P. Brand&quot;</td>
<td>c1893-97</td>
<td>Pleyn A. Mrs</td>
</tr>
<tr>
<td>&quot;AI&quot;</td>
<td>-</td>
<td>Bollington Hop Beer Company</td>
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<tr>
<td>&quot;AB&quot;</td>
<td>-</td>
<td>Britton A.</td>
</tr>
<tr>
<td>&quot;AB&quot;</td>
<td>-</td>
<td>Penguin A. B. Cordial Factory</td>
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<tr>
<td>&quot;AL&quot;</td>
<td>c1904</td>
<td>Coronation Aerated Water Works</td>
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<tr>
<td>&quot;AP&quot;</td>
<td>c1861-1907</td>
<td>Phillips A.</td>
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<tr>
<td>&quot;B&quot; &amp; &quot;W/A&quot;</td>
<td>c1912-30</td>
<td>Borland &amp; Willis</td>
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<td>&quot;B&quot; in &quot;bottle&quot; outline</td>
<td>c1876-1895</td>
<td>Barrett &amp; Co.</td>
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<tr>
<td>&quot;B &amp; Co&quot;</td>
<td>-</td>
<td>Best &amp; Co.</td>
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<tr>
<td>&quot;B.B. &amp; W&quot;</td>
<td>c1912-1930</td>
<td>Borland &amp; Willis</td>
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<td>&quot;B.G.&quot;</td>
<td>1879-1901</td>
<td>Beard G. (Previously Hamilton F.J.)</td>
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<tr>
<td>&quot;BB&quot;</td>
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<td>1863-c1916</td>
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<tr>
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<tr>
<td>&quot;BCD&quot;</td>
<td>-</td>
<td>Piesse &amp; C.</td>
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<tr>
<td>&quot;Binstar&quot;</td>
<td>c1886</td>
<td>Burrel J.H.</td>
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<tr>
<td>&quot;Broxton&quot;</td>
<td>-</td>
<td>Butler J.</td>
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<tr>
<td>&quot;BSW&quot;</td>
<td>-</td>
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<td>-</td>
<td>Farley W. Boonah Spa Water Co. Ltd</td>
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<tr>
<td>&quot;CB&quot;</td>
<td>c1889-93</td>
<td>Cartwright Bros</td>
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<td>c1930-40</td>
<td>Commonwealth Cordial Co.</td>
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<td>Derwin Bros</td>
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<td>&quot;CRG&quot;</td>
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<td>&quot;CSI&quot; in square</td>
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<td>Jackson Bros</td>
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<td>&quot;E&quot;</td>
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<td>Eureka Co.</td>
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<td>&quot;E.J.F.&quot;</td>
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<td>&quot;E.T.&quot;</td>
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<td>Spicer J.A.</td>
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<td>&quot;EM&quot;</td>
<td>-</td>
<td>Murphy E.</td>
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<td>c1888</td>
<td>Petersham and Leichhardt Aerated Water Works</td>
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<td>&quot;F&quot;</td>
<td>-</td>
<td>Farrow G.</td>
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<tr>
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<tr>
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<td>Becker F.A. &amp; F.J.</td>
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"FM" c1875-1933 Manallack F.
"FM" in shield - Mann F.
"GE" - Elands G.
"GHB" - Bilsen G. H.
"Glass" - Weadley & Bates
"GRB" c1875-1912 Borland G.R.
"GW" c1869-1974 Colac Aerated Water Co.
"H2O" - Pure Water Process Co.
"H.T.S" c1884 Smith H.T.
"Health & Purity" - Trood T. & Co.
"HEM" - Man H. E.
"HLG" - Gamble H.L.
"HM" - Hogan & Mahon
"HT" - Taylor H.
"IC" - Collet I.
"JB" - Blackley J.
"J.B."
"JD" in flag. - Leitch C.J.
"JHO" - Jenkins and Davies, Bell patent.
"J.O.C." c1918-1963 Oswald J.H.
"JD" - O'Connell J.
"JGS"
"G" in circles - Dixon J. Prahm Ice & Water Co.
"HMS" est 1862 Spain J. G.
"LB" c1916-62 Gibson J.
"LB" c1904-08 Moore C.R.
"LM" ? to c1902 Bray L. & Sons
"M" - Loudon & Bath
"Made from pure carbonic acid" - Mould W.G.H.
"Made from spring water" - May & Co.
"MBM" - Eckersley & Sons
"McL" c1866-1919 Evans Factory
"NC"
"OK"
"ONB" - Barrow M.
"OSP" - McLean Daniel, Malcolm & Mark & McLeans
"P" c1900 on Sparkling Mineral Waters
"P AMAZ. Co"
"PJB" from 1914 on Schramm & Co.
"Prize Medallion Minerva" - O'Neill Bros
"Progress" c1907-68 O'Sullivan & Purcell
"QB"
"Queenton" - Pike W. & Son
"R & B" - Fort Adelaide Mineral Water Co. Ltd
"Redhand" c1885-1918 Phibbs P.J.
"RH" - Watson & Young
"S"
"S & G." c1892-1930 Glover C.J.
"Safe"
"SRNS" in circle c1888-1920 Queale Bros
"Syphon" c1887-1903 Guinane P.J.
"T.B." c1905 on Ross and Buchanan
"T.F." c1879-1913 Donaldson & Collins
"S on shell" - Harrison R.
"S & G." - Smyth & Co.
"Safe H.
"Richards S.
"Syphon Aerated Water Co. Ltd
"Tinson T. W.
"Flanagan T.
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<td>Wilson T.</td>
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<td>&quot;Tait&quot; patent bottles</td>
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<td>Mullins C.T. &amp; Co.</td>
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<tr>
<td>&quot;Take me home&quot;</td>
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<td>Pilgrim G.W.</td>
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<td>&quot;Tarax&quot;</td>
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<td>&quot;TD&quot;</td>
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<td>Davey T.</td>
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<td>&quot;Tower Hill Brand&quot;</td>
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<td>Spring D. Aerated Waters</td>
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<td>&quot;Truly Australian&quot;</td>
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<td>Salmon M.G.</td>
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<td>&quot;Volcanic&quot;</td>
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<td>Gow. J.</td>
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<td>c1902-15</td>
<td>Bray W.</td>
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<td>c1902 on</td>
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<td>&quot;WAO&quot;</td>
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<td>Henson W. H.</td>
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<tr>
<td>&quot;While I live I crow&quot;</td>
<td>c1886-1912</td>
<td>Robinson H. &amp; Sons</td>
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<td>&quot;WR&quot; (with &amp; without)</td>
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<td>Jones W.R.</td>
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<td>&quot;Xtra&quot;</td>
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<td>Warragul Cordial Co.</td>
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<td>&quot;ZYP&quot;</td>
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<td>Zyp Aerated Waters</td>
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PICTORIAL TRADE MARKS

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<td>Quigley J.</td>
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<td>Goody L.</td>
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<td>Anchor c1895-99</td>
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<td>Chester Lodge Cordial Works</td>
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<td>Animal</td>
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<td>France H.</td>
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<td>Archer</td>
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<td>Bowman A.</td>
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<td>Whittaker W. &amp; Sons</td>
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<td>Resch E.</td>
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<td>Bar</td>
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<td>Starling W.</td>
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<td>Castres A.</td>
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<td>Laurence</td>
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<td>Bird (lyre)</td>
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<td>South Gippsland Cordial Co.</td>
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APPENDIX 1A

Bird in cage c1888-1949 Cosgrove
Birds & fish Cole C. & Co.
Bomb Victorian Artillery
Bomb Baud A.I.
Bow and arrow Oliver & Co.
Bow and arrow Sheekey T.J.
Britannia & key Edwards and Murphy
Broga Edwards & Sons
Bull's head Ivory J.
Bull's head Wheeler F.
Castle
Castle
Cat's head Eaton
Clover leaf McMahon E.
Clover leaf Ryan P.
Clover leaf Watkins W.
Clover leaf
Clown c1911-15 Eckersley & Sons
Coal miner Summons J.A. or J.S.
Coal of arms c1907-68 Glover C.J.
Coal of arms Glover & Runting
Coal of arms Hattersley
Coal of arms Stephens J.& C.
Coal of arms Pritchard G.
Coal of arms with star & key Starkey J.
Cock "rooster" Cruickshank
Cockroach Hiscock G.
Cricketer Mather A. & Sons
Cricketer Shambrook S.R. & Co.
Crow Loughlin & Bellair
Crow
Crow in nest Puschmann H.
Crow Collis G. & Sons
Crow McDonald & Co.
Crow Moore R.
Crow Seedsman & Son
Crow Victorian Seltzer Waters
Crown c1850-c1959 Gardner & Sons
Crown c1883-1906 King W.
Crown Cooper & Barclay
Crown Fittler H. & V.
Crown Simmons C.
Crown Bergman A.M.
Crown Crystal Aired Water Co.
Crown Jenkins and Davies, Bell patent.
Crown Crowder W.N. & Co. now
Crown Downer & Co.
Crown
Dog Harris J.A.
Dog Shaw E.P.
Dog (greyhound) c1914-17 Steward & Hunter
Dog's head Dempsey J.
Dog's head Saunders A.G.
Dolphin Frankston Springs
Eagle Butler W.
Eagle Simpson A. & Son
Eagle (German) Phillips P.J.
Eagle Bright Brewing Co.
Elephant Milsom G.P.
Elephant

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<th>Item</th>
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<td>Avenall A.</td>
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<td>-</td>
<td>Coombes H.G. (&amp; O’Brien)</td>
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<td>Davis T.</td>
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<td>Emu</td>
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<td>Ferguson</td>
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<td>Godfrey P.</td>
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<td>c1859-date</td>
<td>Mansfield S.</td>
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<td>Face &amp; tumbler</td>
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<td>Franklin &amp; Co.</td>
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<td>Fern</td>
<td>c1899-1904</td>
<td>Seebeck G.F.</td>
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<td>Flag</td>
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<td>Briggs &amp; Co.</td>
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<td>Federal Co-operative Mineral Waters Co. Ltd</td>
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<td>Fuchs &amp; Son</td>
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<td>Horse shoe</td>
<td>-</td>
<td>Jacobson &amp; Co.</td>
</tr>
<tr>
<td>Horse shoe</td>
<td>-</td>
<td>Perth Glass Co.</td>
</tr>
<tr>
<td>Horse shoe</td>
<td>-</td>
<td>Spicer J.A.</td>
</tr>
<tr>
<td>Horse shoe</td>
<td>c1893-1915</td>
<td>Pocock C.</td>
</tr>
<tr>
<td>Horse shoe</td>
<td>c1901-1919</td>
<td>Pocock &amp; Co.</td>
</tr>
<tr>
<td>Invicta</td>
<td>-</td>
<td>Yoxall Bros</td>
</tr>
<tr>
<td>Invicta</td>
<td>-</td>
<td>Yoxall J.P. See Yoxall Bros</td>
</tr>
<tr>
<td>Invicta (horse)</td>
<td>-</td>
<td>Culverhouse's Lemonade</td>
</tr>
<tr>
<td>Kangaroo</td>
<td>-</td>
<td>Cowap A.V.</td>
</tr>
<tr>
<td>Kangaroo</td>
<td>-</td>
<td>Grant I.</td>
</tr>
<tr>
<td>Kangaroo</td>
<td>-</td>
<td>Haughey P.</td>
</tr>
<tr>
<td>Kangaroo</td>
<td>-</td>
<td>Rankin E.</td>
</tr>
<tr>
<td>Kangaroo</td>
<td>-</td>
<td>Rochester Aerated Water Co.</td>
</tr>
<tr>
<td>Kangaroo</td>
<td>-</td>
<td>Stokes T.</td>
</tr>
<tr>
<td>Kangaroo</td>
<td>-</td>
<td>Summons &amp; Co.</td>
</tr>
<tr>
<td>Kangaroo</td>
<td>-</td>
<td>Sutton C.</td>
</tr>
<tr>
<td>Kangaroo</td>
<td>-</td>
<td>Telford H.</td>
</tr>
<tr>
<td>Kangaroo Brand</td>
<td>-</td>
<td>M.O.N. Brand</td>
</tr>
<tr>
<td>Kangaroo, fluted twist neck</td>
<td>-</td>
<td>Manger &amp; O'Neill</td>
</tr>
<tr>
<td>Key</td>
<td>-</td>
<td>Coleman W.H.</td>
</tr>
<tr>
<td>Key</td>
<td>-</td>
<td>Key E.</td>
</tr>
<tr>
<td>Key</td>
<td>-</td>
<td>Key F.T.</td>
</tr>
<tr>
<td>Key</td>
<td>-</td>
<td>Peters L.</td>
</tr>
<tr>
<td>King's Head</td>
<td>-</td>
<td>Higginson Royal King Brand</td>
</tr>
<tr>
<td>King's Head</td>
<td>c1904</td>
<td>Coronation Aerated Water Works</td>
</tr>
<tr>
<td>Knight on Horseback</td>
<td>c1877-1905</td>
<td>Davies T. &amp; Co.</td>
</tr>
<tr>
<td>Lamb</td>
<td>-</td>
<td>Lamb G.</td>
</tr>
<tr>
<td>Lemon Slice</td>
<td>c1882 on</td>
<td>Marchant &amp; Co.</td>
</tr>
<tr>
<td>Lighthouse in oval</td>
<td>-</td>
<td>Priddle G.F. Bros</td>
</tr>
<tr>
<td>Lighthouse</td>
<td>-</td>
<td>Thorne W.M.</td>
</tr>
<tr>
<td>Lion</td>
<td>-</td>
<td>Clements &amp; Allen</td>
</tr>
<tr>
<td>Lion</td>
<td>-</td>
<td>Crowder &amp; Letchford</td>
</tr>
<tr>
<td>Lion</td>
<td>-</td>
<td>Meyers J. &amp; Sons</td>
</tr>
<tr>
<td>Lion</td>
<td>-</td>
<td>Sanderson &amp; Co.</td>
</tr>
<tr>
<td>Lion</td>
<td>c1872-1974</td>
<td>Smallhorn E.G.</td>
</tr>
<tr>
<td>Lion &amp; standard</td>
<td>c1890-1891</td>
<td>Spalding &amp; Co.</td>
</tr>
<tr>
<td>Lion (rampant)</td>
<td>-</td>
<td>Bergman and Forsyth</td>
</tr>
<tr>
<td>Lion (rampant)</td>
<td>c1851-c1943</td>
<td>Dixon P.O. &amp; Co.</td>
</tr>
<tr>
<td>Lion (rampant)</td>
<td>-</td>
<td>Green S.J. &amp; Co.</td>
</tr>
<tr>
<td>Lion (rampant)</td>
<td>-</td>
<td>Holland Long &amp; Co.</td>
</tr>
<tr>
<td>Lion (rampant)</td>
<td>-</td>
<td>L.B.M. &amp; Co. Ltd</td>
</tr>
<tr>
<td>Lion (rampant) between shields</td>
<td>-</td>
<td>Frazer &amp; Neave Ltd</td>
</tr>
<tr>
<td>Lion (rampant) &amp; Vita</td>
<td>c1873-1950</td>
<td>Moore A.F. Aerated Water &amp; Cordial Mfrs.</td>
</tr>
<tr>
<td>Lion (rearing)</td>
<td>-</td>
<td>Red Lion Brewery Co.</td>
</tr>
<tr>
<td>Lion (roaring)</td>
<td>-</td>
<td>Allen F. (&amp; Clements)</td>
</tr>
<tr>
<td>Lion in shield</td>
<td>-</td>
<td>Letchford W.</td>
</tr>
<tr>
<td>Locomotive</td>
<td>-</td>
<td>Jenner W.</td>
</tr>
<tr>
<td>Locomotive</td>
<td>-</td>
<td>Midland Junction Aerated Water Co.</td>
</tr>
<tr>
<td>Locomotive</td>
<td>-</td>
<td>Tindall C.</td>
</tr>
<tr>
<td>Magnet</td>
<td>-</td>
<td>Volcanic Aerated Water Co.</td>
</tr>
<tr>
<td>Maltese Cross</td>
<td>-</td>
<td>Healey Bros</td>
</tr>
<tr>
<td>Man</td>
<td>-</td>
<td>Druit</td>
</tr>
<tr>
<td>Man</td>
<td>-</td>
<td>Nelson G.H.</td>
</tr>
<tr>
<td>Man &amp; flag</td>
<td>-</td>
<td>Marshall H.</td>
</tr>
<tr>
<td>Man &amp; mountain</td>
<td>-</td>
<td>Smith A.S. &amp; Son</td>
</tr>
<tr>
<td>Man (head only)</td>
<td>c1905</td>
<td>Morton G.N.</td>
</tr>
<tr>
<td>Man on horse</td>
<td>-</td>
<td>Milnes &amp; Son</td>
</tr>
<tr>
<td>Man sitting on log &amp; dog</td>
<td>-</td>
<td>Watson E.C.</td>
</tr>
<tr>
<td>Map, Australia</td>
<td>-</td>
<td>Bunworth &amp; Co.</td>
</tr>
<tr>
<td>Men (2) and bottle</td>
<td>-</td>
<td>Tasmanian Dandelion Ale Co.</td>
</tr>
<tr>
<td>Mermaid</td>
<td>-</td>
<td>Mears S.C.</td>
</tr>
<tr>
<td>Mine shaft and poppet leg</td>
<td>-</td>
<td>Alpine Brewing &amp; Cordial Co.</td>
</tr>
<tr>
<td>Mineshaft/Poppet head</td>
<td>-</td>
<td>Harper &amp; Climas, Alpine Brewing &amp; Cordial Co.</td>
</tr>
<tr>
<td>Miner and farmer</td>
<td>c1854-1916</td>
<td>Rowlands E. Pty Ltd</td>
</tr>
<tr>
<td>Monkey</td>
<td>-</td>
<td>Short &amp; Son</td>
</tr>
<tr>
<td>Moses striking rock</td>
<td>-</td>
<td>Cranfield G.A.</td>
</tr>
<tr>
<td>Mountain</td>
<td>-</td>
<td>Albury Brewing &amp; Malting Co.</td>
</tr>
<tr>
<td>Mountain</td>
<td>-</td>
<td>Bailey's Mountain Mist</td>
</tr>
<tr>
<td>Mountain</td>
<td>c1891-1911</td>
<td>Running C.</td>
</tr>
<tr>
<td>Muskets (crossed)</td>
<td>c1891-1904</td>
<td>Newling Bros</td>
</tr>
<tr>
<td>Oak Brand</td>
<td>-</td>
<td>Andrews J.A.</td>
</tr>
<tr>
<td>Pelican</td>
<td>-</td>
<td>Grey C.B. Aerated water &amp; cordial factory</td>
</tr>
<tr>
<td>Phoenix</td>
<td>-</td>
<td>Abbot H.E. &amp; M.E. &amp; Abbots Pty Ltd</td>
</tr>
<tr>
<td>Pickaxe</td>
<td>-</td>
<td>Joses Soda Water</td>
</tr>
<tr>
<td>Pickwick</td>
<td>-</td>
<td>Clarke G.N.</td>
</tr>
<tr>
<td>Pigeon &amp; &quot;HMS&quot;</td>
<td>est 1862</td>
<td>Moore C.R.</td>
</tr>
<tr>
<td>Pioneer &amp; axe</td>
<td>c1890-93</td>
<td>Pioneer Aerated Water Co. See Benjamin &amp; Co.</td>
</tr>
<tr>
<td>Pipe</td>
<td>-</td>
<td>Townsend &amp; Robertson</td>
</tr>
<tr>
<td>Portes Fort Una Juvat + shield</td>
<td>1854 on</td>
<td>Dickson James</td>
</tr>
<tr>
<td>Pyramid</td>
<td>-</td>
<td>Tip Top</td>
</tr>
<tr>
<td>Queen bee</td>
<td>-</td>
<td>Cushman J &amp; E</td>
</tr>
<tr>
<td>Railway engine</td>
<td>-</td>
<td>Aerated Water Co.</td>
</tr>
<tr>
<td>Ram’s head &amp; man on barrel</td>
<td>-</td>
<td>Tucknot C.</td>
</tr>
<tr>
<td>Rooster</td>
<td>-</td>
<td>Riverine Brewery</td>
</tr>
<tr>
<td>Rooster</td>
<td>-</td>
<td>Ryan &amp; Rolfe</td>
</tr>
<tr>
<td>Rooster</td>
<td>c1886-1912</td>
<td>Robinson H. &amp; Sons</td>
</tr>
<tr>
<td>Scales</td>
<td>-</td>
<td>Smith F.A. Pioneer Aerated Waters</td>
</tr>
<tr>
<td>Shaking Hands</td>
<td>-</td>
<td>Clancy W.E.</td>
</tr>
<tr>
<td>Shamrock</td>
<td>c1886-87</td>
<td>Riley T.</td>
</tr>
<tr>
<td>Sheep</td>
<td>-</td>
<td>Yarrow W.H.T</td>
</tr>
<tr>
<td>Sheep in shield</td>
<td>-</td>
<td>Ride W.</td>
</tr>
<tr>
<td>Shield</td>
<td>-</td>
<td>Wright &amp; Pannifex</td>
</tr>
<tr>
<td>Shield (with name inside)</td>
<td>c1911-1946</td>
<td>Daniels F.D.</td>
</tr>
<tr>
<td>Ship, rigged</td>
<td>c1861-1900</td>
<td>Clark T. (&amp; Sons)</td>
</tr>
<tr>
<td>Spinning top</td>
<td>c1878 on</td>
<td>Woodroffe (or Woodroffe) W.</td>
</tr>
<tr>
<td>Square &amp; compasses</td>
<td>-</td>
<td>Herbert &amp; Sons</td>
</tr>
<tr>
<td>Stag</td>
<td>c1865-1946</td>
<td>Toohey J.T. &amp; J.</td>
</tr>
<tr>
<td>Stag</td>
<td>c1902-30</td>
<td>Toohey's Ltd</td>
</tr>
<tr>
<td>Stag's head</td>
<td>-</td>
<td>Frazer S.</td>
</tr>
<tr>
<td>Star</td>
<td>-</td>
<td>Shepheard J.T.</td>
</tr>
<tr>
<td>Stars (3)</td>
<td>-</td>
<td>Tanner &amp; Co.</td>
</tr>
<tr>
<td>Sunburst</td>
<td>-</td>
<td>Sawtell &amp; Hauritz</td>
</tr>
<tr>
<td>Swallow</td>
<td>-</td>
<td>Martin J.N.</td>
</tr>
<tr>
<td>Swallow</td>
<td>-</td>
<td>Mosley J.</td>
</tr>
<tr>
<td>Emblem</td>
<td>Date</td>
<td>Company/Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Swallow</td>
<td></td>
<td>Sidell</td>
</tr>
<tr>
<td>Swan</td>
<td></td>
<td>Fowler E.C. &amp; Son</td>
</tr>
<tr>
<td>Swan</td>
<td></td>
<td>Green T.J.</td>
</tr>
<tr>
<td>Swan</td>
<td></td>
<td>McSwan</td>
</tr>
<tr>
<td>Swan</td>
<td>c1904-1917</td>
<td>Logan W.H.</td>
</tr>
<tr>
<td>Swan</td>
<td>c1917-1950</td>
<td>Logan W.H.</td>
</tr>
<tr>
<td>Syphon</td>
<td></td>
<td>Ferguson W.A. Volcanic Aerated Water Works</td>
</tr>
<tr>
<td>Thistle</td>
<td></td>
<td>Plummer J.</td>
</tr>
<tr>
<td>Thistle</td>
<td></td>
<td>Ward R. &amp; T.</td>
</tr>
<tr>
<td>Tiger's head</td>
<td></td>
<td>Headleys Aerated Spring Waters.</td>
</tr>
<tr>
<td>Tree (palm)</td>
<td></td>
<td>Lilydale Aerated Water Co.</td>
</tr>
<tr>
<td>Tree (palm)</td>
<td></td>
<td>Salmon M.G.</td>
</tr>
<tr>
<td>Tree (palm)</td>
<td></td>
<td>Wilcox Bros</td>
</tr>
<tr>
<td>Tree (pine)</td>
<td>c1865-1910</td>
<td>Steel W. &amp; Co.</td>
</tr>
<tr>
<td>Tree or fern</td>
<td></td>
<td>Pioneer Aerated Water Co. Ltd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(F.F. Seebeck)</td>
</tr>
<tr>
<td>Trees (palm)</td>
<td></td>
<td>Collet F.L.</td>
</tr>
<tr>
<td>Turkey</td>
<td>c1881-c1928</td>
<td>James A.B. Bathurst Soda Water Factory</td>
</tr>
<tr>
<td>Two clasped hands</td>
<td>c1890 on</td>
<td>Bronger Bros</td>
</tr>
<tr>
<td>Two medallions</td>
<td></td>
<td>Ferguson</td>
</tr>
<tr>
<td>Unicorn</td>
<td></td>
<td>Hooper J.M.</td>
</tr>
<tr>
<td>Whale</td>
<td>1891-1929</td>
<td>Oerlie C.</td>
</tr>
<tr>
<td>Wheat/sheep/ship/miners' tools/&quot;HM&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>World</td>
<td></td>
<td>Hogan &amp; Mahon</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Goulburn Valley Co.</td>
</tr>
</tbody>
</table>
INDEX OF 60 USEFUL GLASS MANUFACTURERS MARKS INCLUDING BRITISH REGISTRATION MARK TABLE AND BRITISH PATENT NUMBER TABLE.

SCOPE

This Appendix contains a limited selection of glass manufacturers' marks of likely value to Australian archaeologists, researchers and collectors.

LOCATION

Glass manufacturers' marks are usually on the base, or in a well-disguised or hidden part of the design.

FORM

They take one, two or all of the following forms:

* A trade mark, comprised letters or a design, consistently used by the individual glass-maker.

* A mould number and/or letter, for a particular design or mould in a set.

* On occasion, a letter showing the factory of origin.

For example:

```
  K & S
  J
  W
  8
  2 5
  6 1
```

Means:

JK & S  John Kilner & Sons, glass manufacturers
W      Wakefield factory
8      Mould No. 8, probably of a set
2615   Probably in this instance a mould design number, but some manufacturers in the 1920s-30s actually embossed the year of manufacture e.g. '28'.

REFERENCES

Further information may be obtained from:
* A.G. Pullin, Glass Signatures, Trademarks and Trade Names. (Ref. 73)
* J.H. Toulouse, Bottle Makers and their Marks, (mainly of U.S. origin), (Ref. 77),
* M. Graham, Australian Glass of the 19th and Early 20th Century, provides details of many registered designs of tableware. (Ref. 55).
ADELAIDE GLASS WORKS, (G. Henrichson), Croydon, South Australia, 1893-1907; purchased by Melbourne Glassworks Co. Ltd, 1907 and now factory at Killkenny; part of Australian Glass Manufacturers from 1915.


AIRE & CALDER

B

B & Co
E B & Co
BREFFITS
BREFFITS & Co

ALBION BOTTLE CO. Oldbury, Worcs., England, 1928-60

A B C

ALLOA GLASSWORKS Scotland, 1750-1956; became part of United Glass Bottle Company in 1956

from c. 1900-56

A G W

AUSTRALIAN CRYSTAL GLASS Co., also traded as Crystal Glass Ltd, Waterloo, N.S.W., 1914-25; then as part of Australian Glass Manufacturers, Crown Crystal Glass Co., Ltd, when it became a division of Australian Consolidated Industries in 1963, now Crown Corning Ltd.

The registered trade mark originally taken out by Crystal Glass Co in January 1925 was a hexagonal and a six-segment prism shape, but these do not appear to have been extensively used.

In 1924 Crown Glass Works (part of A.G.M.) registered a 'crown' design which was used on tumblers, lamp chimneys and whiskey flasks.
APPENDIX 2

AUSTRALIAN GLASS MANUFACTURERS Ltd, Melbourne, Sydney etc. to date.

A M  AG M  G M

c. 1915-23   c. 1923-30   c. 1930-date

Modern markings are usually on the side of the bottle just above the heel, or incorporated in embossed markings on the shoulder. Typical markings on a modern A.G.M. wine bottle are:

<table>
<thead>
<tr>
<th>Mould no. in set</th>
<th>Trade mark</th>
<th>Design number</th>
<th>Factory of origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>G M</td>
<td>15550</td>
<td>M (Melbourne)</td>
</tr>
<tr>
<td>33</td>
<td>G M</td>
<td>15550</td>
<td>S (Sydney)</td>
</tr>
<tr>
<td>13</td>
<td>G M</td>
<td>15550</td>
<td>A (Adelaide)</td>
</tr>
</tbody>
</table>


c. 1870-1900     B & Co.
c. 1900-60       B & Co. Ltd

BEATSON CLARK & Co. Ltd. Rotherham, Yorkshire, England, 1751 to date.
c. 1900 to date

BOTANY GLASSWORKS, North Botany, c. 1889-1906

B G W

BREFFIT & Co., Sec Aire & Calder Glass Bottle Co.
c. 1875 onwards
CALEDONIAN GLASS BOTTLE WORKS, (Paterson Bros), Port Melbourne. Used full name. 

C S & Co.  

COOPER & WOOD, Portobello, Scotland, 1859-1928.

COOPER & Co PORTOBELLO  
RCD COOPER & Co PORTOBELLO  
COOPER & WOOD PORTOBELLO  
WOOD PORTOBELLO

Usually in block letters around the base.

CROSSE & BLACKWELL Ltd, London, food manufacturers, c. 1830 onwards.

C & B and later C & B Ltd

CROWN CRYSTAL GLASS Co., see Australian Crystal Glass Co.

CROWN CORNING, see Australian Crystal Glass

DAVEY & MOORE Ltd, Brimsdown, Middlesex, England, 1805 onwards.

c. 1870-1900  
c. 1900 onwards  
D & M


1876 onwards

c. 1905-50 F G C or FORSTERS

1950-70 ff

GLASS CONTAINERS Ltd, Penrith, N.S.W. 1970 to date.


1876 onwards.


c. 1926 to date G


c. 1880-1900 FHGW

c. 1900-43 FH

HAROLD BROS, Adelaide - see South Australian Glassworks

HENRICHSON, Adelaide - see South Australian Glassworks

HUGHES F.B., Adelaide - see South Australian Glassworks

JACKSON BROS, Knottingley, Yorkshire, England; later part of Rockware Glass Ltd,

1920-40 JK

c. 1940-to date

KEY GLASSWORKS Ltd, London, 1908-40; Harwell, Essex 1947-66; then part of Rockware Glass Ltd.
KILNER Bros, Conisborough, Yorkshire, England, 1873-1937

K B Ltd

C

JOHN KILNER, Thornhill Lees, Yorkshire, England, c. 1792-1857


JK JK & Co JK & S KBG Co

Above used in conjunction with letters;

T Thornhill Lees Works

W Wakefield Works

LAX & SHAW, Leeds, Yorkshire, England, 1891-to date.

1891-c. 1950 L & S

c. 1950 to date LS

LUMB & SIMPSON, 1842-c. 1870; then JOHN LUMB & Co., Castleford, Yorkshire, England, c. 1870-1937; then part of United Glass Bottle Manufacturers.

J L & Co or JL & Co Ltd
MANUFACTURERS BOTTLE COMPANY OF VICTORIA Ltd, Melbourne, 1907 onwards.

MB CV
MELBOURNE GLASS BOTTLE WORKS Co., Melbourne, 1872-1915; then part of Australian Glass Manufacturers.

1872-c. 1900 M G B Co or Melbourne Glass Bottle Co

c. 1900-15 M

MOONEY VALLEY GLASSWORKS Co., Victoria, 1896-1901. Full name used.

NATIONAL GLASS (YORK) Ltd,

c. 1900 onwards

N

NORTH BRITISH BOTTLE MANUFACTURERS, Shettleston, Scotland, 1903-37; then became part of United Glass Bottle Manufacturers.

1903-37 NB

1937-to date U G B

NUTTALL & Co., St Helens Lancs., England, 1872-1913; then became part of United Glass Bottle Manufacturers.

1872-1913 N & Co and

1913 to date U G B

S

PERTH GLASSWORKS, Western Australian Glass Manufacturing Co., became part of Australian Glass Manufacturers in 1926.

reg. 1910 P G W A in horseshoe trade mark.

PILKINGTON BROS Ltd, St Helens, Lancs., England, Flat glass manufacturer.

Reg. 1877 Modern mark


P G C


P & R BRISTOL in block letters on base, sometimes with PATENT embossed on shoulder.
H. RICKETTS & Co., Bristol, England; Ricketts British Patent issued for moulding method in
1821; became R.P.Ricketts 1852-56.

c.1821-c.1835  H. Ricketts & Co: GLASSWORKS
BRISTOL in two parts round outer part of base.

c. 1835-c. 1845  As above in a continuous line round outer part of base.

c. 1845-c. 1855  H.R. RICKETTS & Co. BRISTOL,
or H.R. BRISTOL, in centre of base.

ROCKWARE GLASS Ltd, Greenford, Middlesex, England, c. 1925 to date; and later at
Doncaster, Knottingley and Harwell.

JOSEPH ROSS, Australian Glass Co. Ltd, Sydney, 1866; Camperdown, 1867-81; Australian
Glass Bottle Works and Joseph Ross & Sons, 1882-83; Australian Perseverance Works,
Camperdown, 1889-93; sold to John Longstaffe & Co., c. 1894; J. Ross ceases at
Camperdown c. 1899.

J. ROSS BOTTLEMAKERS CAMPERDOWN (or SYDNEY)

(and variations of the above)

1897-1919  ROSS BROS, ROSS BROS MAKERS
ERSKINVILLE or SYDNEY

(and variations of the above)

RYLANDS (Ben and Dan), Stairfoot, Barnsley, England, 1867-1929; then became part of
Beaton Clark Ltd, Rotherham.

RYLANDS  RYLANDS PATENT  DAN RYLANDS
BARNESLEY  BARNESLEY  BARNESLEY etc.

This company exported large quantities of Codd (marble) bottles, using various patented
modifications of the Codd design, in the period c. 1880-c. 1920.

SOUTH AUSTRALIAN GLASS BOTTLE FACTORY Ltd, Adelaide, South Australia,
1875-96; purchased by Harrod Bros, 1888; purchased by F.B. Hughes and then traded
as South Australian Glass Bottle Co., 1896-1913; Henrichson manager 1881-c. 1892.

c. 1890-96  O o

c. 1896-1913  F B H
See also Adelaide Glass Works, Croydon, S.A. (under Henrichson)

SOWERBY & NEVILLE, 1855-72; SOWERBY & Co., 1872-81; SOWERBY ELLISON
Glassworks, 1881 onwards, Gateshead, NE England.
APPENDIX 2

c. 1876 onwards


c. 1863 onwards

T. TURNER & Co., Dewsbury and London

MAKERS

DEWSBURY

and LONDON

UNITED GLASS BOTTLE MANUFACTURERS Ltd, England, 1913 to date; originally Cannington Shaw & Co., and Nuttall & Co., St Helens.

U GB (trade mark)
(with)

A Alloa 1956 on
C Charlton 1921 on
K Kinghorn 1938 on
L Castleford 1937 on
N Shettleston 1937 on
R Ravenhead 1913 on
S Sherdley 1913 on
W Portobello 1937 on

VANCE & ROSS, Alexandria, N.S.W., 1904-15. Marks used included:

VANCE & ROSS, V R, BOTTLEMAKERS, SYDNEY
VANCE & ROSS, V R, BOTTLEMAKERS, ALEXANDRIA

V R

W

YORK CITY GLASS Co., York, England, c. 1860 -c. 1900; continued as National Glass (York) Ltd.

Y G
C O

ZETLAND GLASS Co., Waterloo, N.S.W. (previously Druitt St, Glass Co., Darling Harbour; Co-operative (Flin) Glass Works, Balmain, and Grounds and Smith, Waterloo); c. 1920-25, then became Crown Crystal Glass Co.

Z
BRITISH REGISTRATION MARK

Between 1842 and 1883 the following diamond shape marks and letters to indicate year and month, were used to denote a registered design with the British Patent Office.

MARK USED UNTIL 1868

YEAR LETTER

1842 X. 1853 Y. 1864 N. 1875 S.
1843 H. 1854 J. 1865 W. 1876 V.
1844 C. 1855 E. 1866 Q. 1877 P.
1845 A. 1856 L. 1867 T. 1878 D.
1846 I. 1857 K. 1868 X. 1879 Y.
1847 F. 1858 B. 1869 H. 1880 J.
1848 U. 1859 M. 1870 C. 1881 E.
1849 S. 1860 Z. 1871 A. 1882 L.
1850 V. 1861 R. 1872 I. 1883 K.
1851 P. 1862 O. 1873 F. 1874 U.

MONTH LETTER

JAN. C      MAY. E      SEPT. D
FEB. G      JUNE. M     OCT. B
MAR. W      JULY. I     NOV. K
APR. H      AUG. R      DEC. A

Three deviations from the above key are known (Ref. 78): R may be found as the month mark for 1-19 September 1857, and K for December 1860. For 1-6 March 1878, G was used for the month and W for the year.

These registration marks appear often on pressed glassware, but are only occasionally found on other types.

They provide the date that the design was originally registered; the date of manufacture may be on or after that time.
BRITISH PATENT NUMBERS

In the period 1876 to 1920, the following registration numbers were used to denote a British Patent.

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 Occasionally these numbers are embossed on glassware, particularly on the large number of variations of the Codd (marble) bottle between c. 1880 and 1920.
APPENDIX 3

APPENDIX 3

INDICATIVE ALPHABETICAL LIST OF AUSTRALIAN COMPANY AND TRADE-TYPE NAMES.

c 1800 - 1900

The information listed is based on advertisements appearing in:

Sydney Gazette (SG) 1803 - 1839 inclusive
Australian (A) 1824 - 1825 inclusive
Sydney (Morning) Herald (SH) 1840 - 1850 inclusive and Jan/March 1860, Jan. 1870, 1880, 1890, 1900.

Underlining implies bottling or manufacture in Australia; an asterisk indicates association of the company or product with a known type of bottle.

Where known designs of seals on bottles are associated with a Trade Name or Company, this does not imply that such sealed bottles were used for the imports listed.

NAME/PRODUCT/REFERENCE

Abberton Ale SH 23-11-1840
Abbot’s Pale Ale SG 13-2-1828, Porter SG 4-5-1830, East India Ale, SG 10-5-1836
Absinthe SH 12-8-1844
Acid of Lemon, sweetened for Punch & Negus SH 4-9-1840
Acids: Hydrochloric (Spirit of Salts) SG 16-12-1815, Nitric (Aqua Fortis) SG 13-5-1820,
Sulphuric SG 19-2-1820, SH 18-9-1843
A de V Champagne SH 6-4-1847
Affenthaler Wine SH 16-6-1849
Aitken T. Victoria Parade Brewery, Melbourne, Victoria Ale SH 17-1-1870, 26-1-1880
Alderman’s Sauce SG 19-5-1838
Allen, Great Russel St., London, Anti-fat Botanic Medicine SH 7-1-1880
Alloa Ale by Roy SG 7-9-1839
Alrech & champagne SH 22-3-1860
Allsop’s, Burton-on-Trent, England, Pale Ale SG 23-1-1837 Burton Ale SG 3-11-1838, Ales SH 2-1-1860
Almecirim Wine, Tagus River, Portugal. SG 23-1-1827, 30-4-1838
Alok “pick-me-up and sustainer”, Fisher & Co., 337 George St., Sydney SH 2-1-1900
Alpaca pomade SH 7-1-1880
Altona spirit SH 21-12-1847
American Soothing syrup SH 26-5-1841
Ammonia (Hartschorn) SG 31-3-1810, SH 11-1-1900
Amontillado sherry SH 2-1-1860
Anchor trade-mark*, Geneva gin SH 21-1-1860
Anderson’s Colonial Ale SH 21-4-1841
Anderson’s Female Pills SG 8-2-1822
Angiere’s Cognac SG 27-12-1828
Anised cordial in pint bottles SG 14-12-1816
Anisette SH 12-8-1844
Anker’s Sherry SH 7-5-1846

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Annato fluid extract for colouring butter and cheese, F. J. Fulwood & Co., Trade Mark: Stag & Olive Branch SH 6-1-1870
Apenta Natural Aperient Water SH 6-1-1900
Apollinaris Ltd., Hungarian Aperient Water, Trade-mark a red diamond shape (see also Friedrichshall Tonic Water) SH 1-1-1890, 2-1-1900
Arachne Sherry SH 7-5-1845
Arbonius Brandy, Maret & Co. SH 3-3-1860, 11-1-1870
Archer Brand Sherry ex Byass & Co. SH 17-11-1846
Arena M.M. Sherry SH 3-1-1880
Arinto Wine SH 24-9-1845
Armontillada Sherry SH 28-4-1841
Arnauld, L., Cognac, France, Lion on Barrel on seal.* Brandy SH 13-1-1860
Arnold's Ink SH 28-2-1843
Ashby's Ale SG 12-9-1829
Asmanhausen Wine SH 17-2-1847
Atkinson's Bear Grease SH 7-4-1847
Auburn Velev Sherry SH 3-1-1842
Australian Glass Co. Ltd., 74 Pitt St., Sydney SH 1-1-1890
Australian Relish ex Washington Soul, Pitt St., Sydney, 'Flag of Australia' Trade-mark on label SH 12-1-1880, 27-1-1880, 2-1-1890
Australian Spiced Cordial SH 24-3-1841
Austwick and Webb London Sherry SH 15-7-1841
Ayala Champagne SH 4-1-1890

Baird's Scotch Ale SH 23-12-1843, Ale & Stout SH 4-1-1890
Baltimore Bitters, Ex Gourley, SH 29-1-1880
Bandon's Irish Whiskey SH 28-2-1860
Barborossa (Do), Cantherides & Bear Grease Oil SH 2-1-1890
Barca Wine, Quinto, Vila Marim in Regua Area, Portugal SG 16-5-1828
Barclay's XXX Ale SH 2-1-1860
Barclay & Perkins, London, Porter SG 25-12-1823, Stout SG 28-8-1828, East India Ale SG 30-10-1832 Shipping Ale SH 21-4-1845, Ale & Porter SH 29-1-1880
Barclay & Friend's East India Ale SH 8-1-1846
Barker's Rum SG 5-7-1836
Barlow J. & Co., Palmyra jam SH 6-1-1900
Barnet's East India Beer SH 28-10-1843
Barniason's brandy SH 2-1-1890
Barron & Harvey's Drugs SH 14-7-1849
Barry's Triopherous (hair wash) SH 28-1-1870, 7-1-1880
Barsac Wine, Garnone Rive, La Gironde Area, S. France SG 11-4-1818
Barton & Guesdon, Bordeaux, Wines SG 12-12-1837
Baske's Champagne SH 12-2-1840
Bass's Burton Ale SG 12-9-1829, Indian Ale SG 9-11-1839, SH 4-1-1890, Ale SH 2-1-1860, 2-1-1900, Triangle Ale SH 3-1-1880, Bulldog Ale SH 26-1-1880
Bastin & Guesnér's, Clarét & Barsac SH 3-3-1841
Batavia Arrack SH 15-10-1841
Batchelor's Hair Dye SH 28-1-1870
Batcher & Co (See also Batger) Bottled Fruit SH 8-1-1870
Bateman's Drops SG 11-9-1819, SH 23-3-1843
Batchelor Bottlers of Taylor's Pale Ale SG 18-12-1838
Batger & Co., London, Jams SH 13-11-1849, 8-1-1870, Bottled fruit and Lemon juice SH 8-1-1870
Batson's Porter SG 21-10-1830, Porter & Ale SG 8-8-1839, Bottler of Hodgson's Pale Ale SG 29-6-1839

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APPENDIX 3

Battley’s Drugs SH 26-5-1841
Batty’s pickles*, SH 3-1-1840, Pint Pickles & Jams SH 4-1-1860, Vinegar SH 14-2-1860,
Pickles SH 19-1-1880
Beads SG 12-8-1804
Beaumon’s Ringworm Lotion SH 24-2-1841
Beaufoy’s Chloride of Lime SH 4-6-1847
Beckett’s Syrup of orange and quinine SH 29-1-1880
Behrend’s Bros. Frankfurt, Wines SH 14-12-1840
Bell’s Edinburgh Ale SG 18-10-1831
Bell & Rennie’s Port & Clarot SG 29-11-1822
Bellot’s Brandy SH 2-1-1890
Benecarlo Wine, Valencia Area, Spain SH 21-10-1842
Bengal Rum SH 15-10-1841
Berge’s One Night Glass SG 24-11-1838
Beringiere Freres Brandy SH 15-1-1900
Bernard’s Brandy SH 20-2-1860, Stout SH 15-1-1870 ‘Old Tom’ gin SH 28-1-1870
Berwick & Co’s Edinburgh Ale SH 7-9-1843
Betts & Co., London, Seltzer Water SH 9-3-1846
Bigg’s Perfumery, SH 11-5-1842
Binet Fils et Cie., Reims France, Name round Eagle on Seal, Champagne* SH 27-2-1860
Birresbon, Mineral Waters SH 3-1-1880
Bishop’s Citrate of Magnesia SH 3-1-1880
Bisquet Duboche & Co., Cognac, France, DL in shield on seal*, Brandy SH 3-1-1880,
1-1-1890
Bitters Electoral-a cordial SH 4-9-1840
Black’s Sherry SH 2-12-1845, Port SH 21-5-1846
Black Rapee snuff SG 6-1-1825
Blair’s Rheumatic Pills SH 26-5-1841
Blake’s Port SH 21-5-1846
Blaxland’s Ale & Porter SH 21-7-1845
Blood Ale ex Blood, Wolfe & Co., Liverpool, Clown on Seal* SH 8-3-1860, Stout SH
11-1-1890
Boar’s Head ex Hall, T.B. & Co., Stout SH 1-1-1880, Porter SH 18-1-1880, Stout & Ale SH
1-1-1890
Bobby Burns’ Whisky SH 2-1-1890
Bock German Lager SH 9-1-1880, See Rams Head
Bohemian glass, ex Chance Bros., Smethwick, England SH 12-8-1846
Bon Acord Whisky SH 3-1-1880
Bond’s Marking Ink SH 7-4-1847
Bonniet et Cie, Jarnac-sur-Cognac, Case Brandy SH 4-1-1860
Boomerang Brandy ex Joshua SH 1-1-1900
Boord & Son, Allhallows Lane, London*, Old Tom Gin SH 3-3-1860, 3-1-1880
Whisky SH 23-1-1860
Bordeaux Vinegar SH 9-9-1841, Plums SH 14-12-1841
Borthwick’s Dublin Stout SH 1-1-1870, Porter SH 11-1-1870
Boucher’s cut glassware London SH 1-11-1844
Boyne’s London Ale SH 23-9-1843
Bramberg Moselle SH 8-10-1841
Brauneberg Moselle, Middle Moselle SH 6-9-1842
Brengen Champagne SH 23-12-1847
Bridges Ale & Stout SH 28-12-1847
Bright (Dr), Phosphodyne SH 5-1-1880
Bristol Ale SG 8-11-1822
Bristol & Liverpool Crown Glass Co. SH 29-1-1847
Brodie’s citrate of Iron + Quinine SH 11-1-1847
Bronti Wine SG 17-6-1820
Brown’s Fruit SG 17-9-1836

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Browne (Dr. Collis), Chlorodyne SH 7-1-1880, 6-1-1890
Bruce & Co., London Particular Teneriffe, SG 12-11-1828
Bruchart, Brandy SH 19-1-1880
Byrant Bros., London, Port, Sherry and Madiera SG 20-12-1836
Bryant & Davis Sherry SG 28-11-1839
Bryant, Edwin, Port & Sherry SH 28-2-1840
Bryden's Lavender Water SH 13-7-1847
Buccella's, Near Loures, North of Lisbon, Portugal, Wine SG 30-4-1828, Foyal SG 2-5-1828, Wine SH 15-1-1870
Buchan (Dr), Sarsaparilla SH 1-1-1870
Buckle's Port SG 3-5-1817
Buden Bros. Paris, Branded Fruit SH 24-12-1840
Bugle Brand of Fostor's Ale SH 4-1-1890
Bullock, Citrate of Iron SH 8-4-1847
Bukkala Wine ex Wyndham, 94 Pitt St., Sydney SH 1-1-1870
Bullock's Citrate of Iron SH 8-4-1847
Burnstede (Dr), Sarsaparilla SH 9-1-1900
Burden & Gray's Sherry SH 1-3-1845
"Burgatt" brand Moselle SH 22-10-1849
Burgess, Essence of Anchovies A 27-1-1825, Fish Sauce SG 7-4-1825
Burke E & J, Trade Mark Cat above JUB on seal* 3-Star Irish Whiskey SH 29-1-1880
Burlett & Delamaine, Cognac Brandy SH 11-6-1841
Burmester, Port & Sherry SH 3-7-1843
Burnett, Vinegar SG 24-4-1834
Burnett & Campion, Vinegar SG 20-12-1836
Burnett (Sir Robert), Old Tom Gin SH 1-1-1870, 2-1-1890
Burrow's Whooping Cough Syrup SH 26-2-1847
Burton Ale SG 16-6-1805, SH 27-3-1860
Burton Ale, see Alsop, Bass, Larvont & Wardell's
Butler's Port SG 27-3-1823, SH 8-3-1860
Butler, Sarsaparilla Essence SG 29-7-1837, Fluid Sarsaparilla SH 1-2-1841, Effervescing Aperient SH 22-7-1842
Byass & Son, Ale & Stout SH 2-9-1840, Sherry SH 2-12-1845, 2-1-1890, Porter SH 28-1-1870, Stout SH 10-1-1880 Kangaroo Stout SH 25-1-1890
Byer, Ale & Port SH 8-11-1843

Cabinet Champagne SH 28-1-1880
Cadaval Hock SG 13-11-1830
Cadell Sherry SH 1-4-1840
Cadell P.C., Brewery, Nr Duke's Wharf, Millers Point, Sydney SH 10-3-1842, Windsor Ale SH 9-8-1845
Calcavellas Wine SG 5-2-1824, SH 13-8-1844
California Ale & Porter SG 28-5-1849
Callyer & Willson, Ale & Stout SH 2-9-1840
Cambridge Night Lamps SH 2-7-1847
Cambelltown Scotch Whisky, SG 12-1-1839, See Grants & Johnsons
Cameron & Saunders, Bottled Bass Ale SH 10-1-1880
Camphor Ice, ex Clayton SH 2-1-1890
Cannadines Brandy SH 21-6-1842
Cantina, Cloe de & Chateau, Haut Medoc, France, Claret SH 9-12-1844
Capdebos, Sherry SH 2-1-1890
Capirs (French) SG 23-6-1805
Caragheen's Pectorial Oxymel for Whooping Cough, ex A.J. Watt & Co., 534 George St., Sydney SH 4-1-1860
Carbonell's Cherry SG 12-4-1836
Carcavalho Wine SH 6-8-1849, Port SH 1-1-1870
Carmichael's Porphyry Wine SH 14-1-1870, 8-1-1890
Carpenter & Co's. London Particular Teneriffe SG 10-6-1826
Carson's Meat Preserver Essence SH 17-8-1847, 20-10-1849
Cassis Wine, Cassis, Nr. Toulon, Provence, France, Wine SG 7-9-1839
Castle Johannisberg, Johannisberg, Moselle area, W. Germany SH 22-10-1840
Castor oil SG 6-5-1820
Cattaux Roux, SG 30-4-1828
Catto, Scotch Whisky SH 3-1-1880
Cawarra Wine SH 31-3-1860
Celestine Vichy Water SH 7-1-1880
Central Society of Vineyard Proprietors, Saintes, Cognac, France, Name on seal, Brandy* SH 21-1-1860, 1-1-1870 1842 Vintage, SH 24-1-1870
Chambertin Burgundy SH 8-10-1841
Champagne shaped quart and pint bottles for ales SH 2-1-1880
Champagne & wine shaped pint and quart bottles for McEwan's ales SH 2-1-1890
Champagne London Bottled Ale SH 29-7-1840
Champagne Sillery SH 12-1-1842
Champagne Vineyard Prop. 1-Star Brandy SH 3-1-1880
Chance & Hartley's British Sheet Glass SG 8-9-1835
Chance & Hartley's Crown Glass SG 10-11-1836
Chance & Starkey's Crown Glass SG 20-9-1838
Chandon's Champagne SH 3-1-1880, 4-1-1890
Charente Brandy SH 16-4-1842
Cherrington's Ale SG 1-4-1826, XX Ale SG 21-9-1830
Chartell's Brandy SH 20-5-1841
Château Cantinac, Haut Medoc, France, Claret SH 9-12-1844
Château de Becheville, Claret SH 4-1-1890
Château Hautricien, Haut-Rhin, Alsace, White Wine SG 6-1-1825
Château Les Froids, Claret SH 14-1-1880
Château Margaux,* Haut Medoc, France SG 20-12-1817, SH 10-1-1880, 2-1-1890
Château Margaux Champagne SG 27-12-1831
Cheltenham Salts, (see Thompsons) SG 17-8-1811
Cherry Brandy SG 19-5-1810
Cherry Bounce SG 16-5-1837
Chetna Sauce, Calcutta SH 14-11-1840
Chetney Sauce SH 2-7-1849
Cheyne's Lemonade & Soda Water SH 28-2-1846
China La Rose SG 9-4-1833
Ching's Lozenges SG 28-1-1830
Churchill's Syrup of Lime, SH 8-1-1870, 2-1-1890
Clark's Club Ale & Stout SH 12-12-1846
Clark & Co's Vinegar SH 7-2-1842
Clauzet Champagne SH 29-11-1849
Clavier's Brandy SH 28-5-1842
Clausson's Larger SG 1-1-1890
Clayton & Co. Perfumes SH 5-4-1847, Camphor Ice, Crimson Fluid & Nervine Essence SH 2-1-1890, American Bay Rum SH 6-1-1900
Cleghorn's Writing Fluid (ink) SH 20-7-1843
Clicardon Wine SH 20-1-1844
Clique's Champagne SH 1-1-1870, 3-1-1880
Clos de Vougeot Burgundy, Vougeot, Cote de Nuits Area, S. France SG 6-1-1825
Clossman & Co's Champagne SH 1-12-1840
Clouzeau Cognac SH 1-7-1846, 7-1-1880
Coburg Sauce SG 13-9-1817
Cochrane's Ink SH 3-7-1849
Cock's (Corks?) Reading Sauce A 21-10-1824
Cockagee Cider SH 17-11-1843
Cockburn’s Wines SG 7-9-1839, Sherry SH 23-1-1860, Port SH 3-1-1880
Cockle’s Pills SG 29-7-1837, SH 7-2-1860
Coleman’s Mustard SH 22-11-1849 SH 11-1-1860
Collie Blend Whisky SH 1-1-1890
Collins, London, Harley Microscopes SH 21-1-1870
Collins Browne (Dr), Chlorodyne Ex J. T. Davenport, 33 Great Russell St., London, SH 1-1-1870, 1-1-1890
Colonial Jam in glass jars SH 15-1-1870, 6-1-1900
Coltsfoot Cough Linctus (Dr Thompson’s) SH 7-1-1880, 2-1-1890
Columbia, Essence of SH 7-1-1870
Colyer & William’s Ale & Stout SH 19-8-1841
Combs & Delafeld’s Porter A 7-3-1825
“Comet” Brand, Wine & Brandy SH 15-3-1843
Compte de Villifortes Champagne SH 16-4-1860
Condy’s Disinfecting Fluid SH 6-1-1870, 2-1-1890
Congreve’s Balsamic Elixir SG 23-3-1830
Constantia Wine, Cape Province S. Africa SG 30-5-1818
Constantia Wine, 22 yrs in bottle SH 3-4-1841
Cook’s Fish Sauce SG 7-4-1825
Cook & Staddon’s Sydney, Lemon Syrup SH 24-1-1842
Cooper’s Gin, Brisbane SG 25-12-1830
Cooper’s London Bottled Fruit SG 14-9-1833
Cope & Co.’s, Pickles SH 10-7-1840
Copeland & Garret London & Staffordshire, China & Glassware manufacture SH 4-10-1845
Copeland & Barnes, London, Pickles, Sauces & Fruit SH 7-12-1847
Copenhagen Cherry Brandy SH 1-12-1845
Cork Distilleries Irish Whiskey SH 5-10-1844, 3-1-1880
Cornish J. C., Glass Silverer by patent and old process, 13 Pitt St., Sydney SH 17-1-1880
Cortioliad Wine SH 16-6-1849
Cory, Kent Street, Sydney, Balsamic Cordial SH 18-8-1849
Costellon’s Brandy SH 21-5-1842
Cote Rotie Wine SG 30-4-1828
Coulton’s Brandy SH 24-3-1860
Coventry Sauce, Ex Timb SG 9-1-1834
Coward’s Perfumes & Drugs SH 15-2-1847
Coward’s Mustard SH 18-1-1860, Sauces & Salad Oil SH 9-4-1860, 28-1-1870, Pickles SH 19-1-1880
Cox, Maurice & Co., Ale SH 29-1-1870
Cosens, F. W., Jerez, Spain (Silva & Cosens, 14 Water Lane, London), Crown on shield or P.W. under shield, on seal*, Sherry SH 28-1-1860, 8-1-1870
Crapp Woolot, Boulogne France, Wine SH 16-12-1840
Creme Danzig SG 28-4-1825
Creme D’Arabic SH 4-9-1840
Crosse & Blackwell, Pickles* SH 5-5-1842, Fruit & Jam SH 24-6-1847, Fruit SH 13-1-1860, Sauces & Salad Oil SH 14-1-1870
Crown Brand Champagne SH 15-7-1841
Crowing Cock Brand Geneva Gin SH 4-4-1860
Cundell’s Balsam of Honey SG 5-8-1830
Cunliffe & Co. Bordeaux “Comet” Brand Wine & Brandy SH 15-3-1843
Cunningham & Forbes, London, Port & Sherry SG 28-11-1839
Curacas SG 28-4-1825
Curacoa Liqueur SG 12-4-1834, SH 1-1-1870
Curling, 16 Callum St., London, Castor Oil SH 4-1-1860
Curry Powder bottled ex Calcutta SH 30-3-1842
Curtelli & Co.’s Drugs SH 9-9-1843
APPENDIX 3

Cutler's Port & Sherry (probably Cutler, Palmer & Co., 3 New London St., London), CP & Co. in shield on seal* SH 1-1-1880
Cutts J. P., Sheffield, England, Spectacles etc. SH 20-11-1840
C. V. & Co., Brandy SH 2-3-1860

Daffy's Bottles - for sale SH 2-2-1842
Daffy's Elixir* SG 13-3-1823
Dalby's Carminative* SG 19-7-1817
Daley's Whisky SH 28-1-1870
Dalwood Wine, Ex Wyndham, 94 Pitt St., Sydney SH 1-1-1870
Daniel's Perfumes SH 29-4-1842
Danzig Spruce SG 15-11-1832
Davannah's Ale SG 19-3-1829
Davis & Co.'s Sauces SH 11-3-1845, 2-7-1849
Dawson's Lozenges SH 24-2-1841
Dawson's Whisky & Beer SH 1-1-1870
Day and Martin, Blacking SG 15-11-1822
De Bouzy, Champagne SH 21-2-1860
De Castre, Port SH 1-1-1870
Deetson, Beer SH 1-1-1870
Defoix, Perfumes SG 23-9-1826
De Gruchy, Soda Water* SG 21-8-1834
Deinhard, Champagne & Hock SH 3-1-1880
Deinhard & Jordan, Coblenz, Renish Wines SH 28-2-1840
De Jough, Cod Liver Oil SH 6-1-1860
De La Motte, Clos de La Motte, Colleaux de Samour, Particular Champagne SG 4-4-1828
Delatori & Co., Thermometers & Barometers SH 15-4-1841
Delcroix (Defoix?), Perfumes SH 3-6-1842
Defusse Hair Oil, SH 11-1-1890
DeLbruch et Fils, Brandy SH 13-1-1860
De Luze A & Co., Claret SH 3-1-1880
Demarara Rum SH 6-8-1849
De Neuville & Co., 1884 Champagne SH 2-1-1890
Deniarama, Mouth Wash SH 9-1-1900
De Silva & Co., Port SG 24-3-1841
Destournel Claret SG 21-3-1839
Deux Freres Noel, Bordeaux, Wine SH 1-7-1843
Devonshire Cider SH 17-2-1847
Dewar 'Old Highland' Whisky SH 2-1-1900
Dicken's Whisky SH 2-1-1900
Dicken's White Vinegar SG 22-8-1825
Dinneford, Magnesia SH 7-2-1860, 2-1-1880
Distillers Co. Ltd.,* Edinburgh, Whisky in black bottles SH 13-1-1900
Dixon, J. & Sons, Bohemian bottles SH 3-8-1848
Dog's Head Ale & Stout SH 2-1-1900
Dolland, Telescope SG 29-6-1830
Dole, Sydney, Lemon Syrup SH 23-11-1849
Domecq & Co., Sherry SH 6-7-1842
Donpelaloup, Champagne SH 11-1-1890
Dorsetshire Ale SG 9-9-1815, SH 15-2-1860
Double Diamond Port, ex Hunt & Co., Oporto SH 5-12-1849
Downe's Iron & Quinine Tonic and Salicylic Dentifrice SH 27-1-1880
Doyle's White & Red Wines SH 4-1-1890
Draycott's Vinegar SH 25-1-1890
Dredger's Heal All SH 28-8-1847
Druart Brand Champagne SH 22-10-1849
Ducru St. Julien Claret, Haut Medoc, France SG 6-1-1825

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Dudell’s Liquid Blacking SG 26-4-1822
Duff Gordon, Sir W., Sherry SG 1-8-1828, SH 18-1-1860
Duff & Gordon, Cadiz, Wines, SH 23-11-1840
Dulary Brandy SH 28-1-1870
Dumas Brandy SH 23-1-1860
Dunbar’s Beer SG 28-4-1821, Pale Ale SG 4-8-1825, SH 4-1-1860, Lime Juice SG 17-1-1839, Rum SH 19-5-1841, Rum & Devonshire Cider SH 3-2-1844, East India Ale SH 23-9-1843
Dunbar & Saleon’s Pale Ale SG 28-3-1829
Dunbar & Watson’s Beer SH 22-4-1840
Duncan & Flockart & Co., Edinburgh, Apothecary’s Goods SH 6-2-1841
Dunville & Co., Belfast, Ireland, Linked D & C on seal,* Whiskey SH 1-1-1870, 4-1-1890
Dupuytrene Hair Oil SH 26-2-1847
Durham Mustard* SG 8-10-1809
Dusart’s Syrup SH 10-1-1880
Dutch Drops SG 14-2-1818

Eagle Brewery, Marrickville, N.S.W., for sale SH 7-1-1890
East India Pale Ale SG 29-8-1829, EI Ale SG 5-11-1829 (see also Abbot’s, Barclay & Perkins, Bass, Dunbar’s)
Eau de Charmante SH 4-9-1840
Eau de Cologne, see Farina, Larbalestier, Pinta, Tarmans
Eau de Luce SG 15-10-1809
Eau de Vie SH 4-10-1841
Eau de Vie de Cognac SH 17-10-1846
Eau Medicinal d’Husson SH 26-5-1841
Edé’s Perfumes SH 9-4-1845, Rosemary SH 7-1-1880
Edé’s Purable Laboratories SG 25-5-1837
Edinburgh Ale SG 1-2-1812, SH 27-3-1860, see also Bell’s Berwick & Co., Thomsons
E.I. Curry Powder in ¹⁄₂ Pt., 1 Pt. & Qt bottles SH 1-1-1870
Ellecampagne SG 26-9-1829
Elixir de Garas SG 28-4-1825
Elliot’s Porter SG 11-7-1835, Ales & Stout SG 24-9-1835, Pimlico Ale SG 14-9-1837
Elliot & Collins Magnesia SH 9-9-1843
Elliot Brand, Sydney, Sherry & Madeira SH 6-9-1844
Emerald Brewery, Liverpool to let SH 8-7-1843
Ennishowen Whiskey SG 9-6-1828
Epsom Salts SG 17-8-1811
Erasmus Wilson (Dr), Oriental Hair Tonic SH 7-1-1880, 2-1-1890
Erbach Hock SH 3-1-1880
Eskell, 21 Hunter St., Sydney, Odontalgic Essence & Elixir SH 6-1-1860
Essence: Archovies SG 7-8-1812

Bergamot SH 12-4-1842
Jasmin SH 12-4-1842
Lemon SH 12-4-1842
Neroli SH 12-4-1842
Peppermint SG 15-10-1809
Spruce SG 31-3-1810
Turkey Coffee SH 24-1-1842
(see also Patey’s, Rowlands, Oxley’s, Perry’s, Junipers, Priestes)

Etamnoah Vineyard, Albury, Wine SH 3-1-1880
Eval de Perdreaux SG 30-4-1828
Evans, G., Sydney, Purchased from T.C. Russell, Soda-water & Lemonade* SH 4-9-1845
Evans, M., Sydney, Colonial Ale SH 5-9-1845
Evans, Lesher & Webb, London, ‘Montserrat’ Lime Juice Cordial SH 4-1-1900
Ezra Kelly’s American Clock Oil SH 21-1-1880

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Falkirk Ale SH 2-1-1860
Fallon’s Albury Wine SH 1-1-1870
Farina’s Eau de Cologne SG 8-1-1839, In Long & Short Bottles* SH 1-4-1847, No. 4711 Est 1792* SH 5-1-1880
Farina, Johanna Maria, Gegenuber dem Julich’s Platz on seal on white label SH 6-1-1870
Farrye’s Stout SH 18-1-1860
Favell & Budd, French Claret SG 13-6-1837
Favereaux Brandy SH 4-10-1841
Fellman’s London Porter SH 28-7-1842
Felmingham, King St., Sydney, Panes Balsam of Aniseed SH 10-1-1880
Felton’s Champagne SH 1-1-1870
Field’s Imperial Stout SH 28-1-1870
Fine Beaum Wine SH 8-11-1843
Finlays Ale SG 22-11-1832
Finnis & Fisher, Bottled Fruit SH 26-6-1845
Finzi & William’s Porter SH 4-9-1840
Fisher & Co., 337 George St., Sydney, ‘Aloke’ Pick-Me-Up and Sustainer SH 2-1-1900
Fisher H., Glenmore Distillery, Sydney SH 7-11-1849
Fish Sauce SG 8-10-1809, Burgess Fish Sauce SG 7-4-1825
flammont Champagne SH 3-1-1880
Florence Oil SG 8-3-1822
Florilea Mouth Wash SH 11-1-1890
Flower & Co., Ale SH 28-1-1870,4-1-1890
Flowers of Love, Summer Wine SH 4-9-1840
Fonesca & Co., Port SH 24-3-1841
Ford’s Balsam of Homehound SH 24-2-1841
Ford’s Scottish Glassware including ‘Fern’ Tumblers SH 17-1-1880
Fortier Brandy SH 8-1-1870
Foss A., Soda Water & Ginger Beer SG 9-2-1832
Foster M. B., Ale (Bass’s) & Porter (Guiness) SH 12-1-1870, ‘Bugle’ Ale with name and address on cork and capsule SH 4-1-1890, Bass Ale SH 13-1-1900
Foucault’s Brandy SH 1-1-1890
Fountain Perfumes SH 7-1-1880
Four Crown Whisky SH 2-1-1900
Fowler, Blacking & Vinegar Manufacturers SH 26-8-1847
Francis’s Port Macquarie Wines SH 25-6-1870
Frank’s Solution and Specific SH 26-5-1841
Franz Josef Lager SH 3-1-1900
Freeman’s Brown Stout SG 27-7-1839
Freeman’s Anti-ascorbetic Drops SH 26-5-1841
French Barton & Co., Dublin Wines SH 22-2-1843
Friedrichshall Tonic Aperient Water, Apollinaris Co., London SH 14-1-1890
Frontignac Lunette SH 20-1-1844
Frontignac Wine SG 22-3-1822
Frontinae (S. Australian) Port & Sherry SH 8-1-1890
Frydenberg Brewery, Norway, Lager Beer SH 9-1-1880
Fuller (Dr) Rheumatic Cure SH 7-1-1870
Fulton’s Beer SH 1-1-1870
Fullwood F.J. See Annato
Furze’s Stout SH 7-1-1860

Gaelic Ale in ‘Black Smuggler’ Bottles SH 2-1-1890
Gaffney’s Champagne SG 14-12-1839
Galley Brand Whisky, ex McNab & Co. SH 28-1-1890
Gambles Rose Cream SH 7-1-1880

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Gardeaux Brandy SH 8-1-1840
Garvey's (ie's) Sherry SH 5-11-1847, 3-1-1880
Graskell & Downe's Beer SH 3-1-1848
Gassiot's Port SH 2-1-1890
Gayen J. T., Scheedam Schnapps SH 3-1-1880, 1-1-1890
Gesenheim Hock SH 29-11-1849
Ghallah's Indian Cures SH 27-1-1870
Gilbey's Invalid Port SH 1-1-1900
Gilbert's London Dry Gin SH 2-1-1890
Gilbert's Microscope SG 19-2-1839
Glasgow Punch Rum SH 28-4-1841
Glasgow Pale Ale SH 26-5-1845
Glauber Salts S.G. 17-8-1811, 6-2-1819
Gledstanes King & Co., Wines SG 12-12-1837
Glencairn Whisky SH 3-1-1880
Glennis Whisky, Central Glenlivet Bonding Co., Carcorn, Scotland and Longmore & Co., Intertwined Initials on seal* after 1890 SH 24-3-1841, 1-1-1870, 2-1-1900
Glenmore's Colonial Spirits, Porter and Ale SG 3-6-1837; SH 7-11-1849
Glossup's Porter SH 26-9-1842
Godam's Brandy SH 2-12-1841
Goddard's Brandy SH 29-7-1840
Godard Freres, Bordeaux Wine, Marachino and Curraco SH 14-12-1849
Godfrey's Cordial* SG 15-4-1820
Godin's (Gooding's?) Pale Ale SG 27-11-1838
Golden Star Brandy SH 2-1-1890
Gold Top Champagne SH 4-1-1890
Goldwasser Liqueur SG 12-4-1834 No 3 Ale SH 3-1-1860
Goongon Claret SH 4-1-1890
Gonzales Sherry, SH 2-1-1860, 2-1-1890
Gooding's Ale SG 13-7-1839
Gooseberries, English preserves SG 9-7-1809, 9-6-1828
Gordon's Lemon Syrup SH 29-11-1845, Syrup and Sarsaparilla SH 20-2-1860
Gordon's, Malaga, Spain, Sherry, SG 27-6-1835, SH 27-11-1845
Gorgona Anchovies SG 10-3-1828
Gosnell's Perfumes SH 29-4-1842, 7-1-1880, Eau de Cologne in 'patent glass-top bottles' SH 8-2-1860
Goulburn Brewery, Ale & Porter SH 4-5-1841
Gourley's Baltimore Bitters SH 29-1-1880
Gowler's Lotion SG 12-6-1819, Extract of Lead (Gosnell's?) SG 15-4-1820
Graham W & J., Oporto Port SH 23-9-1843, 3-1-1880
Grand Fil & Co., Brandy SH 7-1-1860
Grand Supreme Brandy SH 1-1-1900
Grand Vin Blanc (1825) SH 7-11-1848
Grand Vin Sauvonne (1802) SH 7-11-1848
Grant's Campbelltown Scotch Whisky SH 29-10-1841
Gray & Roberton's Sherry SH 28-5-1849
Greer's Cloudy Ammonia SH 11-1-1900
Grenache (South Australian) Port & Sherry SH 8-1-1890
Grenos Champagne SH 4-1-1890
Griffin's Porter SH 29-1-1886
Grinault & Co., 45 Rue de Richelieu, Paris, Syrup of hypophosphite of lime for chest, and Matico, from Peruvian Pepper Leaves, curative SH 1-1-1870
Guernsey Cordial Gin SH 10-7-1841
Guildford Ale SH 8-7-1842
Guillamon & Co., Brandy SH 7-1-1860
Guinness’ Porter 5-10-1840, Dublin Stout in pints SH 19-10-1840, Stout SH 1-1-1870, 2-1-1900, Lantern Brand Stout SH 4-1-1890
Gum & Fahum Syrup SH 5-1-1842
Gundry Down & Co., Ale SH 7-1-1860
Gunter & J., Berkeley Square, London, Preserves, Fruit* SG 13-9-1834, Raspberry Syrup SH 11-7-1844

Haarlem Drops SH 26-5-1841
Hackett’s Sydney Gin SG 25-12-1830
Hacucapier & Co., Brandy SH 13-1-1860
Haffenden’s Balsamic Tincture SH 26-5-1841, Sherry SH 18-8-1849
Hale & Fenning’s Preserves SG 15-4-1826
Hall & Co., Boar’s Head Stout SH 1-1-1880, Stout & Ale SH 1-1-1890
Hall & Rossi & Co., Ale SH 28-2-1860
Halsom’s London Stout, SG 17-10-1839, Ale & Porter SH 26-9-1842
Hamilton’s Indian Worm Syrup, Chippendale, Sydney SH 17-1-1880
Hankey’s Port SG 3-11-1838
Hanley Microscopes, Ex Collins of London SH 21-1-1870
Hanny’s Extract of Rondeletia SH 12-2-1842
Harley’s Pale Ale & Stout SH 4-9-1840
Harper’s Port, SG 1-3-1817, Port & Claret 27-3-1823, Ale SG 15-11-1832, Ale & Porter SG 3-11-1838
Harris C., Burgundy & Port A 20-10-1825, SH 13-7-1840
Harley’s Crown Glass SG 8-9-1835, 10-11-1836
Hartshorn, Spirits of, (Ammonia) SG 31-3-1810, SH 12-4-1842, 11-1-1900
Harvey’s Sauce A 21-10-1824, SH 2-1-1860
Hasting’s Ale SG 11-7-1835
Haurie & Co., Cadiz, Sherry SH 6-7-1842
Haut-briant, Claret SG 20-12-1817, Sauterne (1825) SH 7-11-1848, Bommes Vin (1825) SH 7-11-1848
Hauterive Vichy Water SH 7-1-1880
Haycock’s Ale SH 2-12-1841
Hayes’ Port SH 11-3-1846
Hayman’s Port SG 7-2-1835, Balsam of Horehound SH 19-1-1880
Hayman & Nichols Wines SG 1-12-1836
Heane W. G., Geelong, Embrocation SH 1-1-1900
Heath & Co., London, Sherry SH 20-3-1841
Hebblewhite S., 432 George St., Sydney, Screw top porcelain lid, bottling jars SH 1-1-1880
Hebblewhite’s Ale SH 19-2-1840
Henby’s Ale SG 29-5-1838
Hendrie’s Perfumes SG 10-12-1835, Lavender Water SH 12-2-1842, Smelling Salts SH 9-4-1842
Henkes J. H., Delftshaven, Holland, Name and either a stork, anchor, crown, flag, cornflower or bell, on seal,* Schnapps SH 3-1-1880
Hennekey & Co., Holborn, London, Maseal & Wine SH 24-3-1841, 3-1-1860
Hennessey’s Brandy SH 22-1-1840, 2-1-1890
Henriot’s Champagne SH 3-1-1880
Henry’s Calcined Magnesia SG 6-10-1828, Vinegar SG 28-1-1830, Colonial Ointment, SH 1-1-1870
Herefordshire Cider SG 1-2-1812
Hesketh Davis, Confectionary SG 5-5-1838, Pickles SH 7-5-1845
Hewitt & Field’s Ale SH 18-9-1840
Hexham's Tincture of Bark SG 17-8-1811
Hibbert's Ale SG 20-11-1832 SH 29-1-1880, Ale and Porter SH 18-1-1860
Higgins's Marble Stout SH 9-1-1890
Hill & Evans, Vinegar SH 10-1-1880
Hill & Laport, Pickles SH 17-2-1841
Hill & Ledger, Bottled Fruits SH 2-1-1860
Hilton's London Port SH 12-12-1844
Hines & Co., Brandy SH 27-8-1845
Hoare's Brown Stout SG 19-3-1829, SH 3-1-1860
**Hobart Town Jama SH 4-1-1860**
Hobson's Double Brown Stout & Pale Ale SG 11-12-1832
Hobson's Jessice, Ale SH 23-10-1841
Hockheimer, Germany, (Crown on seal* in later examples) 1822 Wine, SH 29-4-1841
Hockin's, Manchester Square, London, Seidlitz Powder SH 6-12-1845, Meat Preserver & Flavourer SH 11-1-1847, Seidlitz Powder SH 1-1-1880
Hocking's Seidlitz Powder SG 17-7-1838, Perfumes SH 8-7-1845
Hodgson's Ale SG 24-7-1823, Stout SG 2-10-1823, Pale Ale SG 29-6-1839
Hoffman's Brandy SG 30-1-1819, Jam 13-3-1819, 17-3-1825, Brandy & Rum SG 28-4-1821, Cherry Ratafia in pint bottles* SG 23-10-1830, Bottled Fruit SH 29-6-1847
Holbrooke's Säuce SH 4-1-1890, Vinegar & Pickles SH 25-1-1890, 2-1-1900
Holloway, Strand, London, Ointment SH 1-11-1845, 10-1-1880, Pills SH 13-12-1845, 6-1-1870
Holt's Double Brown Stout SG 4-3-1824
Hooper's Ink SH 8-4-1847, Salts, SG 13-3-1819
Hooper & Sons, 2-5 Anchor Brand Port SH 28-1-1870
Hooper (Dr) Female Pills* SG 12-6-1819
Hopley & Lingham's Port SG 24-5-1826
Hora's Hair Oil SH 28-1-1870
Horner's Cod-liver Oil SH 13-2-1860
Horsley's Claret, ex Capt. Weston SH 17-1-1845, Wine, SH 20-4-1846
Hostetter's Bitters SH 29-1-1880, 4-1-1890
Houghton's Elixir SG 12-10-1833, Stout & Ale SH 9-11-1843
Howard's Corrosive Sublimate, Mercurial Ointment SG 9-2-1837
Howell's Old Tom Gin SH 13-2-1860
Hubert Pere et Fils, Champagne SH 21-2-1860
Hudson's Pale Ale SG 31-12-1837
Hughes & Jones, Late Price & Co., Perfumes SH 13-1-1860, 9-4-1860
Hungarian Aspirant Co., Apollinaris Mineral Water SH 2-1-1890
Hunt's Matchless Blacking SG 7-3-1829
Hunt's Pills SG 29-7-1837
Hunt & Co., Oporto, Spain, Port Wine SG 26-9-1837, 2-1-1890, Treble Diamond Wine No. 1, SH 16-1-1845
Hunt Newman & Co., Port SG 15-11-1836
Hunter, George St., Sydney, Nutritive Cream SH 21-1-1860
Hunter Douglas & Co., Worcestershire Sauce SH 5-1-1900
Huth & Co., Pale Sherry SH 23-9-1843
Hydrochloric Acid (Spirits of Salts) SG 16-12-1815
Hydrocyanic Acid SH 7-9-1843

Idem 1798 Hock SH 13-2-1843
Ihers & Bell, Liverpool, Bottlers of Bass & Co., Ale SH 21-1-1860
Imperial Tokay SH 13-11-1841, Champagne, SH 4-1-1890, V & J Rum, SH 11-1-1890, French Cognac SH 2-1-1900
Ind & Smith's Pale Ale SG 13-10-1836
Ind Cooper & Sons, Late Ind Smith, Romford, England SH 5-1-1847, 4-1-1860
Ind Cope & Co., Beer SH 1-1-1870, 7-1-1880
Ingham's Marsala SH 8-7-1847, 23-1-1860

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Inglish's Pills SG 28-7-1837
Inne's Brandy SH 5-11-1847
Irrawang Wine* SH 19-5-1849, 31-3-1860
Irroy E., Champagne SH 3-1-1880
Islay Blend, MacKay & Co. Islay & Glasgow, Whisky SH 9-4-1841, 1-1-1890, 2-1-1900

Jaaps Bitters SH 3-1-1880
Jacquessoy's Champagne SH 13-1-1860
Jago W.F., Parramatta, Lemonis Juice SH 1-1-1900
Jamaica Pomatum SG 12-6-1819
Jam Crusade SG 28-4-1825
Jamberoo Ale SH 19-5-1846
James' Powder SG 29-7-1837, Blistering Ointment SH 18-1-1843, Fever Powders SH 4-6-1847
Jameson, W & Co., Marrowbone Lane, Dublin, J in diamond on seal after 1874*, or Bow St., Dublin, JJ & S on seal after 1886*, Whiskey SH 18-5-1846, 1-1-1870
Jamison's Claret, SG 14-6-1826
Jacques et Fiis, Champagne SH 22-8-1849
Jayne (Dr), Hair Tonic SH 7-1-1880
JDKZ, Geneva Gin SH 21-1-1860, 1-1-1870
Jeben's Sherry, SH 1-1-1870
Jeffrey's Ale & Stout SH 28-1-1870
Jeyes Fluid Disinfectant SH 2-1-1890
Jobbing's Port & Sherry SG 18-10-1822
Johannisberg, Moselle, W Germany, Hock SH 6-11-1848
John Bull Sauce SG 9-10-1834
Johnson's Cerate SG 19-7-1817, Ink SH 28-2-1843
Johnson's Tasmanian Jams SH 29-1-1870
Johnson & Sons, Sauterne SH 28-2-1842, Campbelltown Whisky SH 20-11-1847
Johnson & Towne's Porter SH 12-8-1841
Jolly's Quart Pickles* SG 23-7-1835
Jones E.A., Ale SH 1-9-1841, Cider SH 22-3-1860
Judson's Dyes SH 3-1-1880
Julian's Brandy SH 8-2-1841
Jullienne's Brandy SH 2-1-1890
Juniper's Essence of Peppermint SG 29-7-1837

Kalos Ceisis Sauce* SH 8-12-1849
Kalvador (Genuine) SG 24-1-1837
Kangaroo Brand of Byass's Stout SH 25-1-1890
Kava gin SH 14-1-1890
Kay's pills SH 7-2-1860
Keating, Lozenges, Worm Tablets, insect powder SH 1-1-1870
Keating, Langton & Saver, Drugs SH 10-3-1847
Keir's London Particular Madeira Wine SG 25-7-1818
Keildah Australian Wine SH 31-3-1860, 31-1-1880
Keillers Marmalade SH 10-1-1880
Kendall C.H., Mark Lane, London, Porter SH 5-10-1849
Kennedy's Ale SH 25-11-1844
Kennet & Heaton Sauces SH 11-3-1845
Kerrot's Sauce SG 16-12-1829
Kerry Vintage Champagne SG 24-9-1835
Ketchup, in quart bottles SG 10-11-1810
Key Brand, ex A.C.A. Nolet, Schiedam, Holland, name & key on seal* used after 1870, Geneva Gin SH 17-9-1849, 2-1-1890

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La Coste & Co., Sherry SH 21-8-1849
L’Advocate Brandy SH 8-3-1860
Ladies Thirst Destroyer, Ex Washington Soul, Pitt St., Sydney SH 1-1-1890
La Fitte (Chateau La Fitte*), Claret SG 1-2-1822
Lagarde Brandy SH 13-1-1860
Lambert & Sons, Lombard St., London, Wines SH 25-11-1845
Lamerts’ Soda & Seidlitz Powders, in red cases, spoons etc. SG 1-10-1836
La Mert’s Effervescing Soda Powder SG 21-8-1834
Laumeau patent bottles SH 3-1-1880, 27-1-1890
Langa& Beycheville, St. Julien, Haut Medoc, Wine SH 29-1-1841
Langton & Wheatley, Late Langton & Saver, Drugs SH 10-3-1847
Lantern Brand Guiness Stout SH 4-1-1890
Larbailetier’s Eau de Cologne SH 17-10-1849
La Rose Claret SH 3-1-1880
Larronde Claret SH 28-11-1849
Larvont’s Burton Ale SH 27-12-1849
Latour, Haut Medoc, France, Claret SH 25-11-1844
Laubenheimer, Rhine, Germany, Wine SH 17-2-1847
Laver & Co., Est. 1845, 335 George St., Sydney, Blacking and Ink SH 7-1-1847, Vinegar SH 1-5-1847, Ginger Mead SH 19-6-1847, Cordials & Liqueurs SH 18-8-1849
Lazenby & Sons, Pickles & Sauces SH 29-7-1840
Lea & Perron’s Worcester Sauce, with name on wrapper, label, stopper & bottle SH 19-1-1880, 5-1-1900
Leake’s Female Pills SH 18-8-1847
Le Cain’s (Dr) Preparation SH 27-7-1843
Le Coq Freres Brandy SH 22-1-1870, 29-1-1880
Ledger’s Sauces SH 30-1-1860, Pickles SH 28-3-1870
Ledyard’s Zuke Water for bath SH 29-1-1880
Leeming Salts SH 6-12-1845
Leibfraumilch SH 22-10-1840
Leibig (Baron), signature on label, Extract of meat SH 8-1-1890
Lemonade in bottles SG 20-9-1831
Lemon Syrup, Ex U.S.A. SH 9-7-1845
Leoville, St. Julien, Haut Medoc, France, Claret SG 24-11-1835, SH 3-1-1880
Leshier’s Hair Oil SH 28-1-1870
Letchford’s Cream of Limes SH 7-1-1880
Levett’s London Port SH 24-1-1845
Lewton’s (Lewtas?) Pale India Ale SH 14-2-1846, London Stout SH 25-8-1847
Lichtwitz E. & Co., Claret SH 3-1-1880
Liebrich’s Syrup of Chloral, Ex Corbyn Stacey & Co., SH 3-1-1880
Lightening Fruit Preserving Jars * SH 1-1-1890
Lignum’s Anti-Scorbutic Drops SH 26-5-1841
Limetta Cordial SH 7-1-1880
Limonis, Ex W.F. Jago, Parramatta SH 1-1-1900
Lindemans Wine SH 31-3-1860
Lingard’s Cough Linctus SH 28-1-1870
Lion Brand Vinegar SH 12-12-1849
Lisbon Wine SH 24-9-1842
Lissette Cordial SH 4-9-1840
Liverpool Gas Chimneys SH 27-7-1844
Liverpool Ale, Ex Ship Brewery, Liverpool SH 2-9-1845
Lochiel Whisky SH 19-1-1880
Locock (Dr.), Hair Lotion SH 1-1-1870
Longevie’s Brandy SH 21-1-1860
Longton’s Cod-liver Oil SH 15-2-1860
Longuet Cr & Sons, Brandy SH 26-11-1846
Lorne Highland Whisky, Greenlees, Argyle, Scotland SH 10-1-1880
Lourides Old Tom (gin?) SH 11-8-1848
Lowndes London Old Tom (gin?) SH 1-10-1846, 2-1-1880, In Fancy Bottles SH 23-1-1860,
Rum SH 1-1-1870
Lubin’s Glycerine & Cucumber SH 2-1-1890
Lucia Oil SH 11-1-1890
Lucell Ale SH 7-2-1860
Lucien Bell & Co., Brandy SH 7-1-1880
Lugrave’s Mayeaus Claret SH 4-4-1860
Lumley’s, Sherry & Port SG 10-5-1822
Lunel Wine SH 9-12-1844
Lyall’s Chelsea Ale SG 31-12-1839
Lyne & Co., Port & Sherry SG 27-2-1838

Macarthur’s Australian Wines*, Camden Park SH 9-1-1860
Macassarina Oil SH 7-1-1880
Macabba Snuff SG 6-1-1825
MacKay’s Islay Whisky SH 9-4-1841, 2-1-1900
Machin’s Stout SH 1-1-1890
Macow Wine, France SH 8-11-1843
Magnesia SG 31-8-1811
Maidstone Gin SG 14-3-1828
Mair S., London, Chemist’s Glassware SH 24-9-1847
Malaga Sherry SG 24-9-1839
Malarki, Sydney, Ale & Wine Bottling SH 7-8-1845
Malmsley Wine SH 14-3-1842
Malvosie Sherry SG 24-9-1839
Manz erina Sherry SH 14-1-1890
Maraschino de Zara*, Jugo-Slavia, Liqueur SG 6-1-1825, SH 1-1-1870
Marcobrunner, Rhinebou, W.Germany, 1822 Wine SH 8-10-1841
Marcobrum (m?) Wine SH 30-9-1842, Hock SH 3-1-1880
Maret’s Brandy SH 20-2-1860, 11-1-1870. See Marret
Marioobrunner 1834 & 1748 Hock SH 13-2-1843
Markenbrum Hock SG 12-12-1835
Marquetson & Co (Marquet & Son), Patent Capsuled Brandy & Cognac SH 16-12-1848
Marret’s Brandy SG 3-11-1838
Marskue (Mastake?) Port SG 14-12-1839
Marshall’s Cereza SG 10-3-1828, Torno Nervine SH 2-1-1890
Marsh Mallow Syrup SH 5-1-1842
Martell & Co., Brandy SG 7-6-1831, SH 3-1-1880, Cognac SH 29-7-1840
Martinez & Co., Sherry & Port SH 3-1-1880, 2-1-1890
Maryland Wine, Bottled by T. Barker SH 6-1-1870
Marzetti & Sons, Beer SG 3-11-1838, Ale & Porter SH 15-3-1841, 2-1-1860, Adopted Bees Patent Metallic Capsule, stamped with their trade name SH 28-1-1860
Mason’s Disinfectant SH 2-1-1890
Mason’s Fruit Preserving Jars* SH 1-1-1890, 25-1-1890
Mason’s Wine Glasses* SH 22-7-1847
McCullagh (Mrs) Australian Pomade SH 22-1-1870
McDonald’s Devonshire Cider SH 1-11-1847
McDonell & Co., Cider SH 13-5-1846
McEwan’s Ale SH 1-1-1870, 2-1-1900
Mead SH 22-2-1842
Mead Syrup, Ex U.S.A. SH 30-7-1845
Medoc Wine SG 1-11-1822
Medoc Giscours Wine SG 8-10-1829
Medlock & Bailey, London, Bisulphite of Lime Meat Preservative SH 1-1-1870
Metchers P., Schiedam Geneva Gin SH 22-1-1870
Melvin’s Ale SH 1-1-1890
Mercury (Quicksilver) SG 8-12-1822, 12-1-1832
Mexican Hair Restorer, with name blown in the bottle SH 11-1-1890
M’Farlane, Chemists Goods SH 29-11-1845
Middleton’s Brewery Sydney SG 25-1-1822
Milwaukee Lager Beer SH 11-1-1890
Miskar’s Sherry SH 25-1-1860
Miskin’s Pale Ale SH 6-10-1840
Mitchell’s Irish Whiskey SH 3-1-1880, 4-1-1890
Mitchin’s Oil of Peppermint SH 19-6-1845
Moderator Moons and Lamp Chimneys SH 18-2-1860
Moets Champagne SH 20-9-1842, 4-1-1890
Moline’s Stout SH 2-1-1890
Moller’s Cod Liver Oil SH 7—1-1880, 4-1-1890
Monk D. J. Steam Vinegar Works Chippendale & then Henderson St., Alexandria SH 3-1-1870, 6-1-1880, 1-1-1890, 2-1-1900
Monnier’s (Mounier’s?) Cognac SH 19-6-1845
Monopole Champagne, Ex Satow T & Co., London SH 6-1-1880, 2-1-1900
Moir’s Jams SH 3-4-1860, See Mores
Monteith, Scotland, Glassware* SG 25-5-1837, SH 18-5-1842
Montellado Sherry SH 5-1-1847
Montserrat Lime Juice Cordial*, Ex Evans, Lesher & Webb, London, SH 4-1-1900
Morau’s Sauce, in 1/2 pint & 1 pint bottles SH 4-1-1890
Mores Jams SH 23-3-1860. See Moirs
Morison’s Pills SH 18-8-1847
Morley’s Porter SH 30-1-1844
Morrison’s Fresh Salmon SG 10-9-1825
Morson T. & Son, Russell Square, London & Summerfield Works, Homerton, Chemists Supplies SH 18-1-1870
Morton’s Brandy SH 4-1-1890, Pickles SH 28-1-1870, 10-1-1880
Mother Siegel’s Curative Syrup SH 7-1-1880
Mounce, Dennis & Co., Brandy SH 1-1-1870
Mountain Wine SH 28-4-1841, See Old Mountain
Mousseaux (De St Marceux & Co., Reims?), Special Design on Seal*, Champagne SH 29-1-1880, See Petillaux
Mouton Rothschild, Claret SH 2-1-1890
Muller’s Ale SH 10-8-1843
Muller Freres, Brandy SH 19-1-1880
Muller’s Hair Grease SG 17-7-1838
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Mumm Jules & Co., 82 Mark Lane, London, Name round anchor on seal*, Champagne SH 3-1-1880, 1-1-1900
Mummel’s Champagne SH 20-12-1842
Munmery J. B., Newtown, Anadyne Aromatic Drops SH 14-1-1860
Munkraft Liqueur SG 12-4-1834
Murray (Sir James) Fluid Magnesia SH 22-7-1842, 7-9-1843, New York Times, Sept. 1856
Muscadine, South Australian, Port & Sherry SG 8-1-1890
Musseaux Wine SG 30-4-1828. See Mousseaux
Mustard SG 28-10-1808

Nabob Sauce SH 19-1-1880
Nacht & Co., Microscope SH 4-1-1900
Nervine, Ex Clayton & Co. SH 2-1-1890
Newman & Hunt’s, Old Aporto Sherry SG 18-1-1838, Port SG 15-11-1836, See Hunt & Co.
Newton, Gordon & Co., Madeira Wine SG 18-4-1827
New York Co., Machine Oil SH 7-1-1880
Neville, Read & Co., Windsor Ale SH 25-5-1847
Neville, Read & Thompson, Porter Bottlers SH 29-4-1842
Nichols & Co., No. 3 Ale & Stout SH 3-1-1860
Nierstein Hock SH 3-1-1880
Nitric Acid (Aqua Fortis) SG 13-5-1820
Norfolk Punch SH 5-4-1841
Norton’s Camomile Pills SH 6-12-1845, 2-1-1880
Noyeau SG 9-1-1819
Nuits & Pomade, Cote de Nuit area, France, Wine SH 8-11-1843

Odonto Extract, Ex Rowlands SG 15-5-1834
Oertel, 403 Pitt St., Sydney Cordials SH 1-1-1900
Oils: Peppermint, Cinnamon, Neroli, Cloves, Bitter almonds, Sweet Almonds, all in SH 12-4-1842, See also: Dupuytrenes, Turlington, Mitchim & Verdigan
O.K. Jam Co., Broughton St., Glebe SH 6-1-1900
Olden’s, Eukeirogenion Shaving Fluid SH 26-5-1841
Old Mountain Wine SH 28-4-1841
Oldridge’s Balm of Colombia SH 12-2-1842, 14-2-1860
Old Tom English Ale SG 6-6-1837, 22-1-1900, Gin: See also Burnett, Bernard, Boord, Howell, Lourides, Lowndes, Nicholson, Swayne, Thompson & Williams
Olive Oil SG 11-1-1812
Olives S.G. 28-10-1808
Olonadi’s Balm SH 7-2-1860
Orricher Brand Hock SH 22-10-1849
Orr’s Ink SH 28-2-1843
Oswin Goode & Co., Successor to Thos. Wyatt, Pickles, Vinegar, Sauces, Bottled Fruit, Jams SH 5-7-1845
Otard, Dupoy & Co., Cognac, France, ODC in crowned circle on seal* Brandy SH 28-5-1842, 18-2-1860
Owen’s Pink Dye SH 28-8-1847
Oxley’s Essence of Ginger SG 28-1-1830

Paddington Brewery, Sydney, Opened SH 6-9-1849
Page’s Port SH 10-7-1840, 23-1-1860
Palmer’s Margaux Wine SG 7-2-1835, Port & Sherry SH 1-1-1890
Palm Tree Brand Gin* SH 3-1-1880
Palmyra Jam, Ex Barlow & Co. SH 6-1-1900
Pane’s Balsam of Aniseed, Ex Felminham, King St., Sydney SH 10-1-1880
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Panier’s D’Anisette SH 5-2-1845
Paragoric Elixir SG 15-4-1820
Park’s Madeira SG 17-5-1831
Parr, Life Pills SH 6-12-1845
Parry (Prof.) Tricophorous Hair Wash SH 14-1-1860
Participation Charantaian Cognac SH 22-1-1870
Patey, Lombard St., London, Oil of Almonds SG 26-9-1829, Perfumes SG 31-7-1830
Patterson & Hibert Ale SH 29-1-1880
Pauillac Haut Medoc, Ex Veueve Dellas, Bordeaux, Claret SH 21-5-1846, Wine, SH 7-11-1848
Paxton & Marjoribanks, Port & Sherry SG 12-12-1837
Paxuretta in pint bottles, Wine SH 25-11-1843
Paxuretta Wine SG 10-1-1832
Peacock, Tasmanian Jam SH 29-1-1870
Pear’s Botanic Cream SH 7-1-1880
Pearson’s Bath Salts SH 22-2-1860
Pechade’s Brandy SH 4-1-1890
Peirce Fils, Champagne SH 22-1-1870
Pendreigh’s Ale & Porter SH 1-1-1870
Penfolds Wines SH 4-1-1890
Percy (Dr), Cordial Balm of Circasia SH 14-2-1860
Perfumes SG 8-10-1809
Permanent Ink in Stoppered Bottles SH 15-2-1847
Perriers B & E, Epernay, France, Brandy with name on seal* SH 21-2-1860, Champagne SH 24-1-1870
Perry Davis & Sons, Pain Killer SH 29-1-1880
Pettifer (Dr), Syrup of Hypophosphite SH 1-1-1900
Pettiaux, Grand Moussoches Champagne SH 21-2-1860, 29-1-1880
Pettie, Wood & Co., Pickles SH 30-1-1841
Pew’s Vinegar SH 25-1-1890
Phantasmagoria Lantern & Slides SH 14-1-1847
Phelps’ Claret SH 16-10-1845
Phillipson, Perfumes SH 20-10-1849, 2-1-1860
Picardon, France, Wine SH 6-9-1844
Pickles SG 5-11-1809
Piles C. & Co., Wine SH 5-4-1841
Pimlico Ale SG 21-6-1836, See Elliot
Pim E. W., Belfast, Owl on seal after 1875*, Beer SH 13-1-1860
Piesse & Lubin, New Bond St., London, Hungarian Bath Water SH 22-1-1880
Pig Brand Ale & Stout SH 22-1-1870, 2-1-1890
Pinnet’s Brandy SH 21-5-1842
Pinta’s Eau de Cologne SG 21—1-1837, See Farina
Pipier’s Champagne SH 13-1-1860, 3-1-1880
Piver L.T., France, Perfumes SH 8-12-1840
Plagnid’s Salad Oil SG 19-10-1839
Plaisir de Dames, Summer Drink SH 4-9-1840
Polak & Myers Burgundy SH 29-1-1880
Polanzwiskis Russian Oil SG 31-7-1830
Polo Bitters SH 4-1-1890
Pomeranzen Liqueur SG 12-4-1834
Pommery, Veuve et Fils, Reims, France, Name + 3 stars on seal*, or Pommery & Greno SEC round seal*, Champagne SH 4-1-1890
Pony’s Medoc SH 8-5-1840
Ponce de Lion, Sherry SH 22-3-1860
Pontack (Wine?) SG 15-9-1831
Port Rex SG 16-5-1828
Powdered Peruvian Bark SG 3-10-1829
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Powell, Fenchurch St., London, Bottled Fruit SG 3-10-1829, Pickles & Jam SH 5-8-1840, Aniseed SG 17-7-1838, Balsam SG 5-11-1836, Pills SH 4-6-1847, Balsam & Aniseed SH 17-4-1860

Pratt W., Parramatta St., Sydney, Devonian Hair Cream SH 18-2-1860, 4-1-1890

Prelser & Co., Claret SH 3-1-1880

Preston’s Salts in Stopped Bottles SH 1-9-1843

Preston’s Rum & Whisky SH 28-1-1870

Prettijohn’s Cider SH 4-1-1860

Price & Co., Essential Salt of Lemon SG 5-8-1830, Rose bloom & Oil of Macassar SH 28-8-1847, Perfumes & Essences SH 24-1-1880, Lime-juice & glycerine SH 4-1-1890

Price Bros., Mercurial Ointment SH 12-4-1847

Price & Gosnell, Perfumes* A 4-8-1825. See: Gosnell

Price & Staddon, Sydney, Bottled Fruit, Preserves, & Jellies SH 28-1-1847

Priest’s Essence of Lemon SH 6-12-1845

Prince’s Snuff SG 6-1-1825, Russian Oil A 21-4-1825

Pscorin’s Munich Brewery Lager SH 22-1-1890

Puriri New Zealand Mineral Water SH 6-1-1900

Purnell’s Vinegar SG 10-11-1836

Pyramid Lamps & Lights SH 30-1-1860

Queanbeyan Brewery SH 5-12-1848

Queen Victoria’s Bouquet Perfume, Ex Patey SH 9-4-1842

Quinta da Sol, Port SG 16-5-1828

Radesheim 1811 Hock SG 12-12-1835

Rams Head or Bock German Lager SH 9-1-1880

Ramsay’s (& Turnbull) Vinegar SG 11-1-1828

Range de Cote Wine SG 12-12-1837

Ranger & Co., Brandy SH 15-1-1900

Raspberry Brandy SG 19-5-1810

Raspberry Syrup, Ex U.S.A. SH 9-7-1845

Ratafia de Grenoble SG 1-2-1822

Ratcliffe J., Gas Chandeliers SH 20-1-1880

Read’s Lager SH 26-1-1880

Reading Sauce A 21-10-1824

Reeve & Son, Ink SH 2-1-1845

Regnaco Sillery Moseaux Port SH 26-3-1860

Reinart’s Champagne SH 13-1-1860

Remy Martin, Human-headed horse on seal*, Brandy SH 1-1-1890

Renaud’s Brandy SH 24-9-1849

Renault’s Brandy SH 3-3-1860, 15-1-1870

Revisalt Wine SH 13-8-1844

Revolver Ale, Ex Younger, Scotland SH 2-1-1900

Rex Port SG 16-5-1828

Reynold’s Specific SG 28-1-1830, New York Times 25-9-1857

Richardet’s Champagne SH 22-8-1849

Riche’s Embrocation SH 7-2-1860

Richer’s Champagne SH 3-1-1880

Richmond’s Stout SG 1-12-1828, XXX Stout SH 1-3-1843

Ridley’s, London Port SH 4-10-1849

Rigaro, Sherry SH 26-3-1860

Rigge’s Perfumes SH 29-4-1842, Blue SH 28-8-1847

Rimmel’s Perfumes SH 2-1-1860, 7-1-1880

Rio Torto, Port SG 16-5-1828

Ritchie’s Sherry SH 21-10-1847

Riva’s Sherry SH 1-1-1890

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Rivieres Brandy SH 3-3-1860
Rizart's Brandy SH 4-10-1841, 29-1-1880
Roach's Embrocation SH 28-8-1847
Roberts, Market St., Sydney, Wines & Spirits SH 2-1-1900
Robertson's Scotch Whisky SH 4-1-1890
Robin, Jules & Co., Cognac, France, JRC on shield on seal*, Brandy SH 28-1-1870, 4-1-1890
Robinson's Ale SH 28-2-1860, Brandy SH 6-1-1870
Rochelle Salts SG 12-5-1821
Rochegrity Brandy SH 1-1-1870
Roederer, Theophile & Co., Maison Fondec, Reims, France, Name on seal*, Champagne SH 1-1-1870, 4-1-1890
Romaneira Port, SG 16-5-1828
Ronial Port SG 15-12-1828
Roniz Port SG 16-5-1828
Ronsillon (Rousillon?) Wine SG 7-9-1839, SH 20-1-1843, 6-9-1844
Rorey's Port SH 5-4-1841
Rose's Eye Lotion SH 3-1-1900
Ross, Royal Belfast Ginger Ale & Lime Juice Cordial SH 1-1-1890
Ross & Sons China Dye 12-2-1842
Ross J., Camperdown Glassworks SH 12-1-1870
Rossetters Hair Restorer SH 7-1-1880
Rotterdam Geneva Gin SH 11-11-1846
Roughton's Double Diamond Oppro Wines SH 12-12-1849
Roulett Delamour & Co., Brandy & Port SH 3-6-1845
Rousse J., Brandy SH 19-1-1880
Row's Embrocation SH 9-1-1880, 1-1-1900, Quinone SH 29-1-1880
Rowland A. & Sons, Hatton Gardens, London, Imperial Dye SG 3-4-1819, Macassar Oil SG 31-7-1830, Macassar Oil & Odonto SH 28-1-1870, Perfumes SH 22-3-1842, Macassar Oil, Essence of Tyre, Kalydore, Odonto, Alsana Extract SG 15-5-1834
Roy, Airlie, Scotland, Ale SG 7-9-1839
Royal Club, Geneva Gin SH 2-1-1890
Royal Extract of Flowers Perfume, Ex Patey, Lombard St., London SH 9-4-1842
Royal Opproto Co., Port SH 28-4-1841
Royal Sillery Champagne SH 15-7-1841, 29-1-1880
Rubiot's Sherry SH 1-1-1890
Rudersheimer, Rhinegau, W. Germany, Bergerein Hock SG 6-1-1829
Rudiman (Dr.), Snuff SG 6-1-1825
Ruinart Co., Name on shield on seal*, Champagne SH 28-2-1840, 8-1-1870
Rushion T., Parramatta, took over Government Brewery SG 9-3-1806
Russel J. C., Sydney, Soda-water & Lemonade* SH 3-1-1840
Rutson's Porter SH 4-8-1842
Rye Whiskey, Ex U.S.A. SH 28-3-1842

Sagaree's Brandy SH 28-5-1842
Salad Oil SG 30-9-1815
Salvolatile (Flavoured Alcoholic Solution) SH 12-4-1842
Sandell, Hair Restorer SH 7-1-1880
Sandeman Bros. R. S. & Co., 20 St. Swithin's Lane, London, Name + R.S. & Co. on seal*, Sherry & Port SH 24-12-1841
Sanderson, Lime Juice Cordial SH 7-1-1880
Santa Claus Oil, ex New Yoork SH 10-1-1890
Sarsae & Co., Drugs SH 15-11-1849
Sarsparilla (Dr Buchan's) SH 1-1-1870
Sarsfield Whisky SH 11-1-1890
Sarsioxs Brandy SH 4-10-1841
Satow T. & Co., London, Dry Monopole Champagne SH 6-1-1880, 2-1-1900
Sauce Royal SG 7-8-1812

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Savoury, Moore & Co., Bond St., London, Seidlitz Powder SH 26-10-1840, Pancreatic Emulsion SH 1-1-1870, 10-1-1880
Sazerac Brandy SH 13-1-1860, 8-1-1870
Scented Rapee Snuff SG 6-1-1825
Scot & Co., Pale Ale SG 31-10-1827
Scotch Snuff, Bottled ex U.S.A. SH 28-3-1842
Scotch Ale, See Baird
Scott's Female Pills SG 8-2-1822, Liquid Blue SG 21-5-1827
Scott (Dr) Liver Pills, in green bottles marked William Lambert, 8 King William St., Charing Cross, on the cork SH 3-1-1880
Scharlackenberg (Scharlackenberg?) Rheinehessia, 1822 Hock SG 12-12-1835
Scheele, Hydrocyanic Acid SH 7-9-1843, Russian Acid SH 7-4-1847
Schiedam Gin SG 27-7-1816
Schreyer, Frankfort-on-Maine, W. Germany, Wines SH 19-9-1843
Schweppes & Co. Soda-water*, SG 12-9-1829, SH 1-1-1900 to date
Seigel (Mother) Curative Syrup SH 7-1-1880, 11-1-1890
Seikbach Champagne SH 4-1-1890
Seinhard & Jordan, Rhenish Wine SH 3-12-1844
Selby, Masden Port SH 28-1-1870
Sellingler & Co., Champagne SH 9-12-1844
Seltzer Water SG 14-12-1816, SH 4-2-1860. See Betts & Co.
Senbaca Liqueur SG 28-4-1825
Serical Madeira Wine SH 13-8-1844
Shamrock Whisky SH 2-1-1900
Shepton Mallet Ales SH 28-1-1870
Ship Brewery, Christian & Hamilton, Liverpool SH 12-6-1845
Shell, Sherry SH 22-10-1840
Siegent (Dr), Angostura Bitters SH 12-1-1870
Sique's Hydrometer SH 24-4-1841. See Sykes
Silvaner Hock SH 20-12-1849
Singleton's Ointment SH 11-5-1842
Sirop d'Orgeat SH 4-9-1840
Sirop de Canillaire SH 4-9-1840
Slee & Slee, Vinegar & Pickles SH 28-1-1870, Vinegar 4-1-1890
Small, Sydney Bottler of London Ale SH 8-3-1845
Smith's, Lavender SG 31-3-1810, Pectoval Compound SG 15-11-1838, Sherry SH 19-10-1843, Port SH 11-5-1846
Smith's Soda Water & Lemonade, Smith & Watson, Sydney SH 18-9-1840, Smith bought Watson's interest SH 1-4-1847
Smyth's Scouring Drops SG 29-1-1837, Perfumes SH 29-4-1842
Snelling's Sauces SH 11-10-1845
Soda Powder in stoppered bottles SH 15-2-1847
Soda Water SG 16-10-1819
Soho Sauce in 1/2 pint bottles SH 1-7-1843
Solar Lamps SH 21-6-1841, New Pattern SH 17-10-1845
Solazzi's Italian Juice SH 21-8-1849
Solomon's Balm SH 28-8-1847
South Australian Frontinac, Tokay, Grenache, Muscadine, Ports & Sheries SH 8-1-1890
Soy Sauce, India SH 2-7-1849
Spirits of Salvolatile, Hartshorn & Nitre SH 12-4-1842
Starkey's Crown Glass SG 20-9-1838
Star Oil, Ex New York SH 10-1-1890
Staffordshire Ale SH 2-4-1846
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<tr>
<th>Glass Type or Process</th>
<th>Author or Source</th>
<th>Country</th>
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<th>First Commercial Production</th>
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<td>Pyrex glass ovenware</td>
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<td>27 March, 1919</td>
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<tr>
<td>Supremax glass</td>
<td>Schott &amp; Gen.</td>
<td>Germany</td>
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<tr>
<td>Calorex (heat absorbing glass)</td>
<td>Chance Bros</td>
<td>England</td>
<td>B.P. 197,500, April 1922</td>
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<td>Colourless glass in tank furnaces (by use of selenium)</td>
<td>Cousen &amp; Turner</td>
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<td>Vita glass</td>
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<tr>
<td>Securit pavement lights</td>
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<td>Securit glass-aluminium electric radiators</td>
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<td>Large scale use of rare earth oxides for artistic decorative colouring</td>
<td>Leo Moser</td>
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<td>Corex glasses</td>
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<tr>
<td>Sintered glass filters</td>
<td>Schott &amp; Gen.</td>
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<td>Precision glass tubing</td>
<td>Kuppers</td>
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<td>B.P. 351,245, Aug. 1929</td>
<td>1929</td>
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<tr>
<td>Low silica glasses for sodium vapour lamps</td>
<td>Osrum G.m.b.H.</td>
<td>Germany</td>
<td>B.P. 351,245, Aug. 1929</td>
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<td>High softening point glass for mercury-vapour lamps</td>
<td>Osrum G.E.C.</td>
<td>England</td>
<td>B.P. 426,129, Aug. 1933</td>
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<tr>
<td>Large scale production of laminated glass</td>
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<td>30 Sept. 1932</td>
<td>1933</td>
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<tr>
<td>Vitrolite</td>
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<td>Glass turning with Widia tools</td>
<td>Kindt/Osram</td>
<td>Germany</td>
<td>1932</td>
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<td>Modern glass wool or silk:</td>
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<tr>
<td>a. Gossler process</td>
<td>Gossler-Pazlezky</td>
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<td>b. Centrifugal process</td>
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<td>a. Soda-lime-silica</td>
<td>Owens-Illinois Co.</td>
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<tr>
<td>200-in. telescope disc</td>
<td>Corning Glass Co.</td>
<td>U.S.A.</td>
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Taken from: 'More Recent Developments in Glasses and Processes', W.E.S. Turner, *Journal of the Society of Glass Technology*, 1938, 22, p.126 (Ref 35)