



Royal  
Pharmaceutical  
Society  
of Great Britain

MUSEUM OF THE ROYAL PHARMACEUTICAL SOCIETY OF GREAT BRITAIN  
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INFORMATION SHEET: 3

## LIQUID MEDICINES AND MEDICINE BOTTLES

### *MEDICINES FOR BOTH INTERNAL AND EXTERNAL USE*

The prescribing of multi-dose mixtures by physicians only became widespread around 1850. Until then physicians favoured the single 'draught' (a one-dose medicine) or a selection of herbs from which the patient would prepare a brew. Should the physician have prescribed a solid medicine form, he might also have prescribed a plain or flavoured water or a julep (a flavoured, syrupy drink) to wash this medicine down.

By the end of the 19<sup>th</sup> century the mixture had become the most popular way of prescribing medicine, a state that continued until around 1940 when tablets and capsules began to take over.

The skill of the pharmacist was to combine the prescribed ingredients to produce a stable and palatable mixture containing an accurate dose within a measurable amount of liquid. An early method of dosage was to incorporate markings on to a bottle. A label would advise the patient to take, perhaps, 'a sixth part' of the medicine every so often. This was later replaced by the more familiar teaspoonful, dessertspoonful and tablespoonful doses. Measures of glass or porcelain were manufactured to enable accurate dosing.

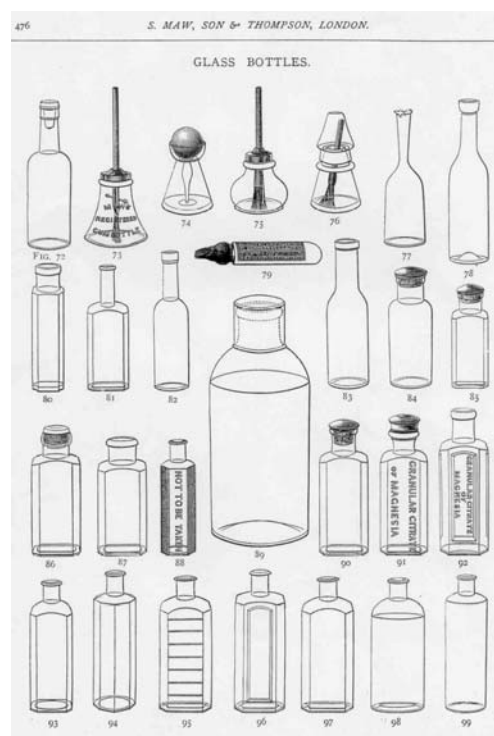
Equivalent doses were:

- 1 fluid drachm = 1 teaspoonful
- 2 fluid drachms = 1 dessertspoonful
- ½ fluid ounce = 1 tablespoonful

Since metrication in 1971 the standard dose has been 5ml.

The base liquid for the vast majority of mixtures is water. To this is added the medicinal ingredients, substances to ensure even dispersion (if necessary), preservatives and flavourings. Some solid ingredients are soluble and are simply dissolved in the base. Light powders like magnesium carbonate, are easily dispersed by shaking. For heavy insoluble powders such as aspirin, a thickening agent has to be added to the base, usually a mucilage of a gum such as tragacanth.

Certain ingredients may react with each other. For example, if a solution of sodium bicarbonate is mixed with an acidic substance such as lemon juice, gas is produced which could build up



sufficient pressure to blow a cork or even shatter a bottle. To remedy this the interacting ingredients would be incorporated into separate mixtures and bottled separately then labelled with instructions for the patient to mix them in a glass immediately prior to taking. Medicines for external use are prescribed and dispensed similarly but would be labelled 'Not to be taken' or 'For external use only'.

## MEDICINE BOTTLES

The material of choice for medicine containers has traditionally been glass. Although weighty and brittle, it has few reactions with other substances. Plastic has gained in popularity over recent years but modern medicine bottles are mostly made from glass which is usually tinted brown to protect the ingredients from light.

Until the end of the 19<sup>th</sup> century many bottles were still hand made and had a *pontil* mark, a rough mark left after the glass blower broke off the tube used for blowing the bottle. On higher quality bottles this mark was rubbed down to remove any roughness (a *polished pontil*). In about 1830 moulded bottles were introduced and the mould joins may be seen, usually along the length of the sides.

Bottles used for dispensing internal medicines were usually plain or bore graduations representing doses of fluid ounces, teaspoonfuls or tablespoonfuls. Some pharmacists and manufacturers of proprietary medicines would have their names embossed on their bottles. Modern bottles are plain and an accurate 5ml spoon is always supplied.

Specific types of bottle have been produced eg a pourer on the lip, a rubber-teated dropper incorporated into the stopper for dispensing drops, a wide neck for a thick mixture or emulsion. Medicines for external use are usually dispensed in poison bottles. In the second half of the 19<sup>th</sup> century there were many reported cases of accidental poisoning due to bad labelling, illiteracy and indistinct packaging both in the dispensary and the home. A recommendation was made that bottles for the storage and supply of poisons should be 'distinguishable by touch' (which was finally made a law in 1933). This, initially, resulted in many strangely shaped bottles, the familiar vertically fluted bottle becoming the design of choice.

## SEALING AND WRAPPING

Until the 1930's corks were used to seal bottles. Originally corks were cylindrical, not tapered, and an apparatus called a *cork press* was introduced to reduce the end of the cork to fit the mouth of the bottle. It was also used to shape corks to fit the odd assortment of bottles supplied by patients to carry away their medicines in the early days of National Insurance Dispensing (sauce bottles, beer bottles, etc.)

Until the mid 20th century presentation was an important part of medicine packaging, A small label would be affixed to the top of the cork, a fluted paper cap tied over the cork and neck of the bottle then the bottle neatly wrapped in white paper (using sealing wax for the flaps).

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The illustration overleaf shows a selection of bottles for use in the pharmacy. From S Maw, Son and Thompson's 1882 wholesale catalogue.

This information sheet is also available in a large font size.  
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