

# 1

# Brewing and Beers

## Aims and learning outcomes

This chapter aims to introduce learners to the world of beers and the skills and knowledge involved in dispensing draught beer. On completion the learner should be able to:

- Describe the raw materials, production process and the methods used to establish the strength and taste of beers and sake.
- Demonstrate the appropriate glassware and foods to compliment the major categories and types of beers.
- Identify the equipment, service procedures and solutions to common problems when dispensing draught beers.
- Explain the major types of gas and cooling systems used to dispense draught beer.

## 1.1 History and evolution of making beer

### Beer etymology

The origins of the word for beer range from the Latin word *bibere*, meaning to drink, to the German word *Poer* or *Bior* and the Scandinavians *Bjor*, which was a brew made from mashed, germinated barley (Etymology Dictionary, 2012). Beer can be defined as an 'alcoholic beverage made from the fermented extracts of malt, with or without the extract of other cereal grains and it is usually flavoured with hops' or 'a generic term for all alcoholic beverages that are fermented and brewed from malted barley, hops, water, and yeast. Other starchy cereals, such as corn and rice may also be used where legal' (Oxford Dictionary, 2013).

## Beer in the ancient world

Beer is truly an ancient beverage. Some state it is actually the oldest made by humankind. Its origins are intermingled with the origins of bread. Both are made from grains, both fermented by yeast, and both can be considered an accessible, easily digested, wholesome source of energy and nutrition.

The earliest detailed mention of beer, is officially attributed to a 9,000 year-old Mesopotamian tablet which mentions a recipe for beer as 'barley wine made from malted barley' by the Sumerians, who had a goddess of intoxicating drink called 'Nikasi' (Black et al, 2006). The Sumerians lived in an area called Mesopotamia, which is now known as Iraq.

## The Middle Ages

In medieval times, 'ale wives' were brewing in their kitchens in Europe, and the popularity of beer was becoming established in growing towns and cities, where it was safer to drink than polluted water. As brewing became more organized, it drew the attention of the tax collector's beady eye. Paying tax on ale or beer has been normal practice since as far back as 1188, when King Henry II of England brought in the 'Saladin Tithe' in order to pay for the crusades. Traditionally beer was brewed in the home, on farms, in the wayside taverns and in monasteries (Hornsey, 2004).

Many events of this era incorporate the word 'ale', reflecting its importance in society. Brides traditionally sold ale on their wedding day to defray the expenses - hence 'bride-ale' which became 'bridal'.

## Lager is born

Bavaria monks were responsible for discovering a new technique - bottom fermentation. In the summer months, fermentation could run out of control and spoil the brew. When Bavarian monasteries stored beer for long periods in cool cellars, they found that the yeasts sank to the bottom of the vessel instead of frothing at the top, and so fermented more slowly. This bottom fermented beer could be stored for much longer periods, and became known as 'lagering', from the German word for storage Briggs et al (2004).

## The Industrial Revolution

There was no brewing in breweries, such as we would today recognize, and until refrigeration was introduced in the 1880s, beer was only brewed in the colder months from September to April or May. The 19th century brought technological development and the local craft changed to large scale industries, brought about by the invention of the steam engine by James Watt, which was used for firing brew houses, and artificial refrigeration by Carl von Linde. The invention of refrigeration made it possible to brew year round. Another decisive development

was the discovery of microorganisms by Louis Pasteur – thus the science of the fermentation process was finally established. Building commercial lager breweries close to rivers, allowed boats to transport beer internationally.

## Beer today

Changing consumer tastes have not diminished the global interest in beer. Today it is huge, and as it continues to grow specialty style beers are in ever-greater demand, as well as the major brands. These styles were brought about in direct response to the mass produced carbonated and pasteurized keg beers that were dominating pubs around the world. This renaissance brought about the surge of designer lagers and boutique beers.

The microbrewery bar is another way of making beer on a smaller individual scale, establishing a tiny brewery within the bar premises (brew pub). The Germans refer to these as *Hausbrauerei*, the British call them *brewpubs* and the Americans and Irish refer to them as *microbrewery bars* which usually incorporate a good food offering (steakhouse or fish restaurant) and lively entertainment (see *Microbrewery* below).

## 1.2 The raw materials of beer

### Water

Water, called 'liquor' by brewers, is the least expensive and the main ingredient in beer. It comprises 80 to 90 per cent of the final weight of a beer. Since it is used in every stage of the brewing process, the quality and taste of the water has a great impact on the character of a beer. This is why, historically, breweries were located in and around areas with an abundant supply of 'good' quality water. The best styles of beers in the world, for example Dortmund and Dublin, owe their distinction to the type of water available at each brewing location. The liquor must be biologically pure and its mineral content must be analysed. Most waters used for brewing are treated to render them suitable. Water types used for different beers include:

- soft water with low mineral content for light coloured beers,
- harder water for darker lagers, stout and ales
- and exceptionally, neither hard nor soft water used for Munich dark beers.

The brewer prepares the water with a process called *burtonizing*, which involves the addition of different minerals.

### Barley, malt (fermentable sugars)

Most of the barley used in brewing is malted. That means it has been soaked in water for a time, until it has absorbed enough water to begin germination, which