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## The Principles and Practices of Bar and Beverage Management - The Drinks Handbook

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# **The Principles and Practice of Bar and Beverage Management**

**The Drinks Handbook**

**James Murphy**

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## Preface

Customer expectations of the level of service they regard as satisfactory are rising. Bars are constantly exploring what their customers want, and this focus has placed increased demands on all staff to perform, not just in terms of productivity, but also in terms of comprehensive product knowledge and specialized service skills. It is within this context that I welcome you to '*The Principles and Practices of Bar and Beverage Management: The Drinks Handbook*'. In my previous book, '*The Principles and Practices of Bar and Beverage Management*', I concentrated on the complexities of managing modern bars. In this publication my focus has been on providing a comprehensive training guide and authoritative resource textbook, to suit students across the hospitality, hotel, bar, restaurant and culinary fields of study internationally. This book is designed to provide bartenders, sommeliers, mixologists, waiters and food and beverage practitioners with valuable background knowledge of the key beverage areas of the bar.

The chapters are structured with specific learning aims and objectives, comprehensive indicative content, tables, illustrations and models of the significant issues surrounding the topic area. Chapters 1 and 2 explore brewing and brewed products, which include beer, cider and perry, and the dispense management knowledge for dealing with various types of draught beers. The following three chapters focus on wine: Chapter 3 provides a foundation of knowledge; Chapter 4 presents the principal wine growing regions of the world and their unique wines; and Chapter 5 identifies the fortified, aromatised and quinine wines. Chapter 6 introduces the world of distillation, exploring in detail how spirits are made. We go on to consider the major spirit types and brands sold around the world in Chapter 7. The many varied ingredients, production processes and categories of liqueurs are covered in Chapter 8. The areas central to the background, production, varieties and service of hot and cold non-alcoholic beverages are examined in Chapter 9. Finally, Chapter 10 deals with the background and methods for making cocktails and mixed drinks, together with a comprehensive range of classic and contemporary recipes which can be prepared in your bar. You may have never before mixed some of the drinks highlighted in this book, but you can certainly gain confidence by following its instructions.

I hope that you enjoy reading about, discussing, demonstrating and recommending the many beverages of the bar, and finally please ensure that you always serve and consume alcoholic beverages responsibly.

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- The industry and trade associations, Government and public service bodies around the world whose collective work helps to consistently raise the standards and safety of the bar and its beverages.
- The international, national and local food and drinks companies for their research and innovation in bringing new products and services which enhance the bar and beverage industry and for their collective sponsorship of awards and scholarships which help to recognise excellence and promote creativity in the bar and its staff members worldwide.
- The authors listed in the bibliography and web resources sections of this book for their research and work in the areas of their specialist knowledge.
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## About the author

James Murphy is author and winner of numerous national and international industry awards, which includes World Champion - Bacardi Martini Grand Prix for Elite Bartenders in 1993. A former Education Chairman of the International Bartenders Association (IBA), he has managed in the bar and beverage industry for over 30 years. James is co-ordinator of licensed trade development programmes, Chairman and Author of the BSc (Honours) degree in Bar Management and Entrepreneurship. He holds multiple Masters Degrees in Hospitality Management and Higher Education and currently lectures full time in the Bar Management area at the Dublin Institute of Technology (DIT), School of Culinary Arts and Food Technology, Cathal Brugha Street, Dublin, Ireland.

**Author:** *Bartenders Association of Ireland – A History (1997).*

## Dedication

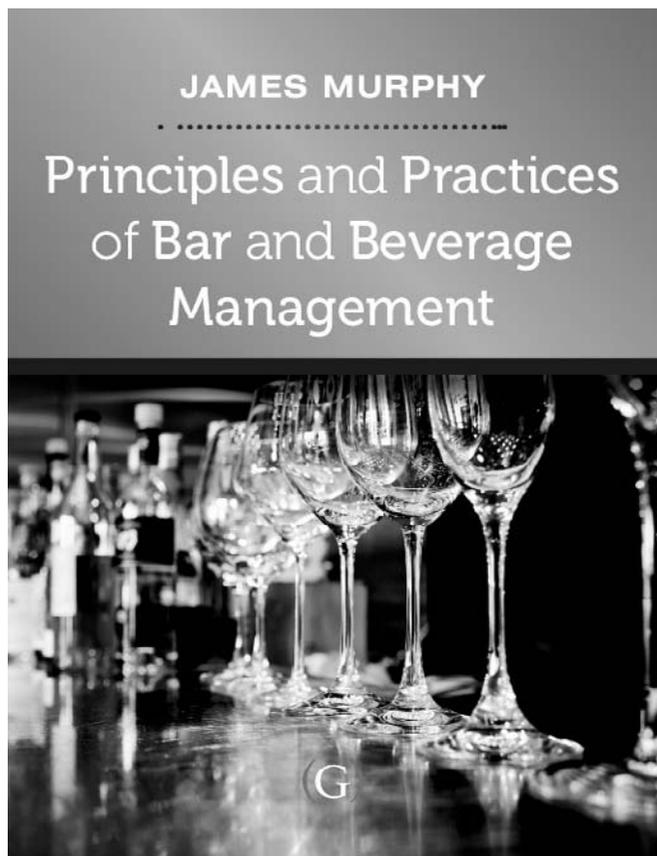
It is quite common for authors to dedicate their books to individuals whom they admire. But what if this book was dedicated to the practitioners? To all the bartenders, servers, sommeliers, brand ambassadors and mixologists I dedicate this book, you are the true champions and trailblazers in the bar and beverage world

Also available to accompany this text, *The Principles and Practices of Bar and Beverage Management*, a comprehensive text and resource book designed to explain the latest developments in and new complexities of managing modern bars – be they stand-alone or part of larger institutions such as hotels and resorts.

*Principles and Practices of Bar and Beverage Management* gives the reader a complete guide to every aspect of bar management; a well defined pedagogic structure; links to relevant web and audio-visual resources; coverage of all the key topics plus the technical skills and practices in the bar and beverage sector; over 200 explanatory illustrations and tables; and numerous examples and case studies from within the industry.

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# 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

produces the enzymes that will turn the starch into sugar during the later mashing process. After that it is kilned (dried in an oven) and sometimes roasted in order to reach the desired colour. From now on, it is called malt. Most breweries get their malted barley from independent malteries. The different varieties and uses of malt include: pale, which is mild in flavour, black malt for dark colour and dryness, carastan and crystal malt for a malty sweet base, cara-pils malt for pale lagers.

The other non-malt cereals which are used for making beer include oats, wheat, rice, corn, rye and sugar. The colour can range from very light (pilsner malt, lager malt, pale malt) to dark brown or black (chocolate malt, black malt). Between those extremes there are several more grades.

A special scale, known as EBC (European Brewing Convention) is used to indicate colour in malts (and beers). The lower the EBC, the lighter the malt (because it was kilned for a shorter time).

- Mild ale malt: 7 EBC
- Munich malt: 20 EBC
- Amber malt: 40-60 EBC
- Brown malt: 150 EBC
- Crystal malt: 100-300 EBC

Some beer styles need roasted barley (1000-1550 EBC) for their colouring. That is un-malted but roasted barley that gives a very black, often opaque beer.

## Hops (humulus lupulus)

Hops are long vine-like creepers, which exist as male and female plants. Only the unfertilized flower of the female hop vine is used in brewing. Hops primarily supply the pleasant bitter flavour and aroma to beer. Prior to the use of hops, beers were flavoured with herbs, roots and spices such as juniper, coriander, nutmeg and oak leaves, etc. With over one hundred commercially available varieties, hops fall into two general categories: the bittering hop - high in resins, low in oil, and the aroma hop - low in resins, high in oils.



**Figure 1.1:** Samples of barley and hop pellets.

The choice of hops greatly influences the character of the beer. Hops are added to the brew because they provide the beer with:

- aroma, bitterness, tangy, flavour
- antiseptic action preventing the development of microorganisms and
- the tannin which helps clarify the beer.

Major varieties include the Fuggle (UK) known for its softness, Goldings (UK) with a rounded pungency, Savaz (Czech Rep) which is said to be the best quality in the world, Cascade (USA) with excellent aroma, Hallertau (Ger), Hersbruch (Ger) and Tettnang (Germany) all with a fresh delicate aroma.

## Yeast

This is a microscopic, free-living unicellular fungus, which we manipulate in alcoholic beverage production. The yeasts used must be very particular, as a change of yeast will result in a different character of beer. This unicellular, microscopic organism is protected more carefully in a brewery than any other ingredient, for once the particular strain has been selected it must not be allowed to change otherwise the character of the beer changes with it.

Brewer's yeast is divided into three categories:

- **Ale yeasts:** (top fermented beers) Ale yeasts stick together, multiply and form a surface on the liquid, therefore fermentation takes place on top. It takes 3 - 4 days at 16 to 27 degrees Celsius, and the total time of the process is between 2 to 4 weeks.
- **Lager yeasts:** (bottom fermented beers) Lager yeasts fall through the liquid and work on the sugars at the bottom of the vessel, so that fermentation takes place at the bottom.
- **Wild yeast** (naturally fermented beers): Wild yeast is a form of fungus (like all yeast) found in the air. If it settles onto new wort, fermentation will start. The wild yeast used in brewing is not any wild yeast though. It is only in the Zenne Valley that brewers use this special yeast. The brewers make their wort like any other brewer, but when it comes to the fermentation period they leave a hatch or a window open and wait for the wild yeast to start munching the sugar in the wort. This spontaneous fermentation produces a very special type of beer, known as Lambic (see Timmermans Brewery, established in 1781, [www.anthonymartin.be](http://www.anthonymartin.be)).

## Adjuncts, sugar

Rice, flaked maize, raw barley, wheat and oats are all examples of adjuncts. They have a similar amount of fermentable extracts to malt and some of them also contribute to head formation and retention. In some cases the brewer wants to achieve a special taste or a certain colour for his beer; then adjuncts might be the answer. The use of adjuncts partly comes from the U.S.A., where they used maize and

rice for economic reasons. Maize and rice gives a lighter, more easily-drinkable beer for the mainstream consumer. Many American (mainstream) beers have up to 50 per cent of adjuncts in them. Sugar is another kind of adjunct. The sugar used in brewing must be specially treated; this treatment is dependent upon the desired flavour and character of the beer. A little amount of caramelisation and a darkening of the colour occurs.

**Table 1.1:** The major differences between top and bottom fermented beers

Top-fermented beers	Bottom-fermented beers
Fermented by <i>Sacchromyces cerevisaie</i> .	Fermented by <i>Sacchromyces</i> .
Fermented at higher temperatures (15 to 25 °C).	Fermented at lower temperatures (0 to 12°C).
Stored & matured at about 12 degree Celsius.	Stored & matured at about 0 degree Celsius.
May be primed to add carbonation and dry-hopping to offset the sweetness of the priming.	May be Krausened, especially German lagers.
Matured for a relatively short period, from 3 to 21 days.	Matured (lagered) for up to 3 months to allow yeast to 'condition' beers to add carbonation.
Clarified by fining agents like Isinglass as the maturation period is short.	Clarified by cold setting and racking over the long lagering period.
Some beers are not filtered and yeast is left in the bottle or cask to 'condition' (sur lie) the beers.	Yeasts filtered out just prior to bottling.
More pronounced flavours, richer with distinct characteristics.	Cleaner tasting, less flavoured, more thirst quenching.
Best served at higher temperatures from 12 °C (cellar temperature).	Best served cold, 7 to 10 °C.
Generally less stable (lasts up to a month in a cask if the cask is not tapped).	More stable as yeasts are filtered out during bottling.
Generally improves with age, especially if bottle-conditioned or cask conditioned	Does not improve with further ageing.

Source: adapted from (Bright, 2005)

### 1.3 The brewing process

There are five major types of beers: lager, ale, stout, porter and bock. For all of these, the stages of brewing are similar.

Usually made from barley, beer begins with the germination of the grain. Once germinated, the barley is called malt. The malt is then dried in a hot kiln. The temperatures and duration of roasting controls the caramelization of malt sugars which determine both the color and sweetness of the beer.