

Chapter 1

Discovering Distilled Spirits

In This Chapter

- ▶ How distilled spirits were invented
- ▶ How distilled spirits became popular
- ▶ The foods from which spirits are made
- ▶ The varieties of distilled spirits

This chapter is called “Discovering Distilled Spirits,” but “Distilled Spirits 101” would also do nicely because this is a down-to-earth basic guide to the multicultural history of the wonderful beverages human beings produce via distillation.

Naturally, the chapter includes some spirits history, starting with a graceful bow to other types of alcohol beverages and how they differ from the distilled varieties. The different types of spirits are listed here, as are the foods from which they’re made. And just for kicks, I give you a quiz about famous spirits (okay, famous ghosts) in classic movies.

A Brief History of Distilled Spirits

The road to distilled spirits begins with those *other* beverages, wine and beer.

The story starts one day back in the dim, distant past at a point that most anthropologists peg between 5000 and 6000 BCE. A goatherd in the Tigris-Euphrates valley (now Iraq), where human beings created their first agricultural communities, noticed that his flock was friskier than usual.

Looking closely, he saw the goats feasting on rotting grapes fallen from a nearby vine. Being a curious goatherd, he tasted a few grapes himself. Then he tried a few more, and maybe another handful after that, and soon goats and goatherd ambled happily back to their village to share their discovery with others.

Of course, you know what that anonymous goatherd didn't: Those "rotten" grapes had fermented.

In other words, naturally occurring microorganisms in the air had landed on the grapes and started feeding on the fruit, digesting the grape sugars, and turning them into gas (carbon dioxide) and liquid ethanol/ethyl alcohol, which is the same alcohol used in all modern alcohol beverages.

Eureka! Wine! Beer!

Very quickly, the goatherd's friends, neighbors, and acquaintances far and near grasped the idea that squeezing rotten, sorry, *fermented*, fruit released a pleasantly intoxicating beverage called wine (from the Greek *vinos*, the Latin *vinum*, the Old English *win*, and the Germanic *winam*).

And then they discovered that fermenting grains released an equally pleasant intoxicating beverage called beer (from the Latin *bibere* [to drink], the German *bier*, and the Old English *beor*, pronounced *beer*).

After that, a jolly good time was had pretty much everywhere fruits and grains were grown. And it was a profitable time, as well: The oldest known Sumerian tablet is a receipt for a shipment of beer from Mesopotamia to some lucky merchant in Northern Greece. This tablet is a hunk of clay that made it possible for modern scholars to translate the language of Sumer, the nation of Middle Eastern city-states that was one of the world's earliest civilizations.

Advancing the art

At first, folks were content with wine and beer. But being human and naturally inquisitive, they began to experiment with ways to standardize the fermentation process because they wanted to manage the production and improve the quality of alcohol beverages.

Not all alcohol is “alcohol”

Ethanol (ethyl alcohol) is the only alcohol used in food and beverages, but it isn't the only alcohol used in consumer products.

Other alcohols that may be sitting on the shelf in your bathroom or workshop are:

- ✓ **Methyl alcohol (methanol):** Methanol is a poisonous alcohol made from wood. It's used as a chemical solvent (a liquid that dissolves other chemicals). During Prohibition, when the sale of beverage alcohol was illegal, some unscrupulous illegal producers would substitute methanol for ethanol, thus leading to many truly unpleasant results, such as blindness and even death, among people who drank it.
- ✓ **Isopropyl alcohol (isopropanol, “rubbing alcohol”):** Isopropyl alcohol is a poisonous alcohol made from propylene, a petroleum derivative. It's *denatured*, which means that it includes a substance that makes it taste and smell bad so you won't drink it by mistake.
- ✓ **Denatured alcohol:** When ethanol is used in cosmetics, such as hair tonic, it, too, is treated to make it smell and taste bad. Treated ethanol is called *denatured alcohol*. Some *denaturants* (the chemicals used to denature the alcohol) are poisonous, so some denatured alcohol is also poisonous when taken internally. In other words, it's definitely not a good idea to drink your hair tonic.

The first step was to take control of fermentation by adding specific microorganisms (yeasts) to the fruit and grains rather than simply allowing miscellaneous little buggers to waft in and ferment the fruit by accident.

The second step was to distill alcohol from the liquid released by the fermented food.

Unlike the discovery of fermentation, which seems to have been a happy coincidence, learning how to distill alcohol was the result of a deliberate series of experiments conducted by an Arab scholar named Abu Musa Jabir ibn Hayyam (?–803 CE). Most modern scientists generally accept Jabir, known in the West as Geber, as the Father of Modern Chemistry.

Sometime during the eighth century CE — these dates are never quite as clear as one might like them to be — Geber was puttering around with his *al-ambiq*, a round pot with a tall spout rising from the top, sort of like an oversized tea kettle. When liquid was heated in the pot, the vapors rose through the spout to be cooled, condensed, and collected as a liquid in a vessel conveniently positioned under the spout.

The al-ambiq was standard equipment for alchemists, the medieval practitioners who spent their lives trying to turn base metal into gold and, as a sideline, looking for the magical “elixir of life” that would make men immortal.

But Geber, who may have been a wine aficionado, took a different tack. He wondered what would happen if he poured wine into the al-ambiq and boiled it.

In other words — “Eureka!” will do nicely — the man was about to invent distillation.

Distillation arrives

It’s a physical fact that alcohol boils at a lower temperature than water, so when Geber poured his wine into his al-ambiq and set the pot over a fire, the alcohol in the fermented grape juice or the fermented grain and water mixture used to make beer vaporized before the rest of the liquid in the pot.

The alcohol vapors rose through the spout on the al-ambiq, were collected and condensed, and, just like that, Geber produced the world’s first distilled spirit. And it needed a new name.

The solution was simple: While some alchemists were playing around with longevity tonics, early cosmeticians used their al-ambiqs to boil up powdered antimony in water, producing a dark liquid called *kohl* or *al-kohl*.

Al-kohl became *alcohol*. The al-ambiq became the alembic still, also known as the pot still, which is described in detail in Chapter 2. And that’s how your favorite distilled spirit drink was born.

The secret gets out

Geber died in 803 CE, but his distillation process lived on among his Arab compatriots who used the distillate they produced not as a beverage but as a medicine.

The Arabs kept distillation to themselves for several centuries, taking their secrets with them to the Iberian Peninsula when they conquered Spain. When Spain expelled its non-Christian citizens in 1492 and Portugal followed suit in 1597, the secrets of how to make

grain and fruits into a potent medicine remained behind to be taken in hand by those doctors of the Middle Ages — monastery monks. Like the Arabs, the monks prescribed the distillates, including some that they originated — such as Benedictine and Chartreuse liqueurs — for medicinal purposes.

The missionary/medicine men met with enough successes to convince the European pagans that these liquids carried the blessings of God to assure a long, healthy life. Around the year 1300, Arnald of Villanova, a professor of medicine at Montpellier (France), one of the earliest European medical schools, compiled the first (hand) written instructions for distilling alcohol from wine.

Arnald christened distilled alcohol *aqua vitae* (Latin for “water of life”), which translated to *eau de vie* in French, *uisege beatha* among the Celts, *akavit* in Scandinavia, and *vodka/wodka* (“dear little water”) in Russia and Poland. By any name, the distillate was reputed, in Villanova’s words, to “prolong life, clear away ill-humors, revive the heart, and maintain youth.” Others claimed it also alleviated diseases of the brain, nerves, and joints; calmed toothaches; cured blindness, speech defects, and paralysis; and warded off the Black Death.

Moderation is the message

In 1478, 48 years after Gutenberg invented the printing press, an Austrian physician named Michael Puff von Schrick published the very first book on distillation. Puff’s piece immediately hit the 15th-century bestseller list, going through 14 editions in 20 years.

Most readers probably bought the book to use as a medical reference, but a significant number likely picked it up in order to learn how to make distilled spirits with local fruits and other produce for pleasure.

The new distilled spirits were very popular, so much so that in 1496, a doctor in Nuremberg, Germany, whose name is unfortunately lost to history, offered a word to the wise imbibers: “In view of the fact that everyone at present has gotten into the habit of drinking aqua vitae, it is necessary to remember the quantity one can permit oneself to drink, and learn to drink it according to one’s capacity, if one wishes to behave as a gentleman.”

Sounds as good today as it did then.

Not surprisingly, nobody at all complained about having to take Arnald’s medicine instead of the crushed leaves, boiled grains, and pressed herbs it came from.

The process goes global

Serendipitously, the spread of distillation occurred just as Europeans began to seriously explore and colonize the world, establishing regular trade routes between Europe and the East and Europe and the New World.

The Spanish and the Portuguese were leaders in the exploration game, bringing back new products and taking their alcohol beverages with them. Spirits, in particular, were a win-win trade-off because they were

- ✔ Virtually unknown in the lands the explorers explored
- ✔ Easy to produce
- ✔ A really smart way to turn an excess crop, such as grain, into a cash product rather than leaving it to rot in the field
- ✔ A stable beverage that resisted spoilage and turned tastier as it aged in wooden barrels

Best of all, distilled spirits were a totally natural product that — after distillation became common knowledge — could be produced from virtually any local plant anywhere in the world. As a result, by the 19th century, distilled spirits of one sort or another were available pretty much anywhere a traveler traveled.

Table 1-1 is a list of the plant foods that can be fermented to provide the base for making distilled spirits.

Table 1-1	Foods Used in Distillation
<i>This Food . . .</i>	<i>. . . Makes This Distilled Spirit</i>
Grains	
Oats	Scotch whisky
Rice	Sake (distilled rice wine), Japanese whiskey
Rye	Whiskey
Wheat	Whiskey, vodka

<i>This Food . . .</i>	<i>. . . Makes This Distilled Spirit</i>
Fruits and Vegetables	
Agave fruit (piña)	Tequila
Apples	Apple jack, brandy
Grapes	Brandy, eau de vie, grappa
Other fruits	Brandy, cordials, liqueurs
Potatoes	Vodka
Sweeteners	
Sugar cane, molasses	Rum, aguardiente, cachaça
Honey	Cordials, liqueurs
Botanicals (Herbs and Seeds)	Gin, cordials, liqueurs

Setting Standards for Producing Modern Distilled Spirits

Distilled spirits came to the United States just as they had everywhere else — with the explorers and the immigrants. The Irish brought their own whiskey and so did the Scots. The Brits and Dutch brought gin, the French brandy, and Slavic people vodka.

The only difference was that while religious objections led to forbidding the use of any alcohol beverages (including spirits) in some countries, the United States stands alone in having once prohibited drinking for political reasons. (State legislatures under pressure from their constituents passed bans of varying severity on beverage alcohol production and distribution. So many states had bans, in fact, that ultimately the federal government had to follow suit or face interstate warfare.)

The not-so-noble experiment

In 1917, following years of agitation by anti-alcohol activists and the passage of prohibition laws in a number of states, the United States Congress passed the 18th Amendment to the Constitution prohibiting distribution or sale of alcohol beverages nationally. One exception: Medical purposes with a prescription only.

Two years later, after ratification by the requisite three-fourths of the states, Prohibition became the law of the land. Congress then passed the Volstead Act (the National Prohibition Enforcement Act) defining an alcohol beverage as any liquid containing more than 0.5 percent alcohol.

The result was an increase in crime as Americans in general said, “No way,” to what President Herbert Hoover called “the Noble Experiment.” Americans did their drinking at home or in speakeasies (nightclubs hidden behind locked doors, opened only to a secret password such as “Joe sent me”). Alcohol was shipped in surreptitiously by bootleggers sneaking across the country’s seacoasts or its northern or southern borders. Worse yet, there was also an increase in illness due to the fact that much of the alcohol making its way into America’s drinking glasses and teacups was unregulated, unsafe, and sometimes deadly.

By 1933, the country had had enough: On December 5, the 21st Amendment to the Constitution was ratified, repealing the 18th, and Americans could once again legally enjoy alcohol beverages, including those of the distilled variety.

New rules for better times

The bad news about Prohibition is that it increased crime and reduced the safety of alcohol beverages. The good news is that after the country recovered from its dry spell, the federal government sat down to write the Alcohol Administration Act on what exactly constituted a specific spirit.

Since then, other countries and economic entities such as the European Union have followed suit. As a result, when you buy Scotch whisky or Bourbon or any other distilled spirit from a recognized distiller anywhere in the world, you know that you’re getting a standardized, reliable product.

The American rules, known formally as *Standards of Identity*, are contained in *Title 27 of the Code of Federal Regulations, Chapter 1, Part 5, Section 5.22*.



If you want to know every single little detail about what makes a distilled spirit a whiskey, say, or a vodka, every single fact is available online at www.atf.treas.gov/regulations/27cfr5.html. If your eyes glaze at the very thought of making your way through

government-ese, you can find a slightly more user-friendly version posted online by an organization called The Online Distillery Network for Distilleries & Fuel Ethanol Plants Worldwide at www.distill.com/specs/USA10.html.

Or you can read the clear descriptions in the next section, which lays out the basics minus the boring factoids only distillers really need to know to make sure their product meets U.S. standards. And of course, each chapter in this book is devoted to a specific spirit and presents the important facts about the drink.



In essence, the take-away points are:

- ✓ No, a distiller can't just pour some ethanol into a bottle and call it whiskey or one of the other popular distilled spirits.
- ✓ Yes, when you buy your favorite brand, you're getting a standardized product that meets all the relevant government standards.

The Types of Spirits

All distillates come off the still as clear liquids. How the distiller processes the liquid determines the taste, smell, and appearance of the final product.

As a rule, however, all spirits fall into one of two broad categories: *clear spirits* and *dark spirits*. Put in the simplest terms, clear spirits are the ones you can see through; dark spirits range in color from warm amber to deep brown.

The clear spirits

All clear spirits are clear, but depending on the foods from which they were distilled, some have a specific flavor.

- ✓ **Gin** comes in two basic styles. There's the original Dutch jenever (which the French called *genievre*), a distillate of malt spirits that include juniper berries. London dry gin is a clear spirit that's redistilled with juniper berries and further flavored with aromatic botanicals (plant products).

- ✔ **Rum** is distilled from molasses or sugar cane. All rums start out as totally clear spirits; some are aged in barrels, a process described in Chapter 2. Aging turns the rum golden, amber, or very dark.
- ✔ **Sake** is a clear spirit distilled from rice wine.
- ✔ **Tequila** is distilled from the fruit of the blue agave plant. Like rum, all tequilas start out clear, but some turn golden or amber with aging.
- ✔ **Vodka** is a true neutral spirit, crystal clear, with no discernible flavor or aroma. Modern vodka producers, however, may flavor their vodkas, changing the taste and sometimes the color to match the color of the fruit juice or synthetic flavoring.

The dark spirits

With the exception of brandy, which is distilled from wine (remember Geber from earlier in this chapter?), dark spirits are beverages distilled from grains.

Like clear spirits, the dark spirits start out clear, but aging in barrels and the addition of coloring agents such as caramel (burnt sugar) to maintain color consistency from year to year turns them characteristically golden amber.

- ✔ **Brandy** is a spirit distilled from wine or a mash (fermented mass) of any fruit, most commonly grapes.
- ✔ **Whiskey** is a spirit distilled from grain, such as barley, corn, rye, or wheat. A straight whiskey is made from the distillate produced by one operation of a still and added neutral spirits. A blended whiskey contains several straight whiskeys and added neutral spirits.
- ✔ **Bourbon** and **Tennessee Whiskey** are distilled spirits made only in the United States; by law, they must be made of 51 percent corn.
- ✔ **Canadian Whisky** is a distilled spirit made in Canada, generally from a mix of grains, primarily corn, plus rye, wheat, and barley.
- ✔ **Irish Whiskey** is a distilled spirit made in Ireland from a mix of grains dominated by barley.
- ✔ **Scotch Whisky** is a distilled spirit made in Scotland from a mix of grains, primarily barley, plus “small grains” — so-called because they’re used in limited amounts. The small grains usually include oats.

For spirits, every year is a good year

Unlike wine and with the exception of some brandies, spirits aren't classified by vintage.

For wine, quality and flavor depend to a great extent on the characteristics of the grapes from which the wine is made. Specifically important is their sugar content, which may vary from year to year along with the weather.

Distillation, on the other hand, produces a liquid (distillate) free of all sugars; it's the still master's skill, not the weather, that determines the quality of the liquor.

Ditto for aging. Wines age in the bottle as active microorganisms continue to digest and process residual sugars, maturing and mellowing the flavor of the wine. Spirits, on the other hand, age only in barrels. After they're bottled, they are what they are: Time doesn't change them.

Yes, some distillers, notably the Scots, promote high-priced specialty whiskies that have been aged for more than 21 years and proudly display the year in which they were bottled. But what matters isn't the year they were bottled, but the time they spent in the barrel.

Of course, a very old, very rare, and maybe very dusty bottle of whiskey may be valuable to a collector, but before you plunk down multi-dollars for one of these bottles, remember: Poor storage in varying temperatures, exposure to sunlight, or a loose cap can turn even the very best spirit unpalatable.

A Word about the Words

Like other fine craftsmen, distillers cringe when folks describe their products in derogatory terms.

Prime example: *booze*. The word comes either from the old English word *blouse* (to drink heavily) or, more likely as the *Online Etymology Dictionary* suggests, from the name of early Philadelphia distiller E.G. Booze. Either way, it's a no-no in the company of serious spirits connoisseurs.

Another no-no is *hooch*, short for *Hoochinoo*, the name of a native Alaskan Tlingit Indian tribe whose distilled spirits were a fave with miners during the Alaskan Gold Rush. The *Merriam Webster Online Dictionary* says this one first popped up around 1880. But it really took off during Prohibition, possibly because someone discovered that the tribe's name comes from an Indian word for *grizzly bear* *fort* and figured that the hooch packed the punch of a big, bad bear. Or not.

Entertaining spirits

Check out the following list to see how many entertaining spirits you can match with the actors who embodied them.

On the left, the name of a famous motion picture starring a member of the spirit world. On the right, a list of actors and actresses who starred in the films. Match 'em up. Answers follow.

Movie	Star(s)
1. Ghost (1990)	a. Bill Murray
2. The Ghost and Mrs. Muir (1947)	b. Bob Hope, Paulette Goddard
3. The Ghost Breakers (1940)	c. Gene Tierney, Rex Harrison
4. Ghost Story (1981)	d. Fred Astaire
5. Ghost Busters (1984)	e. Patrick Swayze, Demi Moore
6. The Ghost Goes West (1935)	f. Charles Laughton
7. The Canterville Ghost (1944)	g. Robert Donat
8. Ghost Catchers (1944)	h. Nancy Sinatra, Harvey Lembeck
9. Ghosts of Mississippi (1996)	i. (John Sigvard "Ole") Olson and (Harold Ogden) Johnson
10. The Ghost in the Invisible Bikini (1966)	j. Whoopi Goldberg, Alec Baldwin

Answers: 1. e; 2. c; 3. b; 4. d; 5. a; 6. g; 7. f; 8. i; 9. j; 10. h

By preventing Americans from enjoying safely made alcohol beverages, Prohibition triggered the production of some fairly nasty homemade substitutes with equally nasty names. One example is *rot gut*, a pretty clear description of what happens to your innards if you drink alcohol beverages made by careless amateurs.

As for *bathtub gin*, yes, people really did whip up this stuff in their bathtubs using medical alcohols and flavorings. Unfortunately, as the sidebar "Not all alcohol is 'alcohol'" explains, the alcohols used in medicinal products, such as rubbing alcohol, aren't safe to drink. Which brings us back to — you got it — rot gut, a term that's been pretty much discarded now that alcohol beverages are legal and safe when consumed in moderation.

But that doesn't stop people from calling spirits *hard liquor* to differentiate them from beer and wine. Actually, because no liquid is either hard or soft, the more sensible terms are *higher proof* or *higher ABV* (more about that in Chapter 2), descriptions based on the alcohol content of the beverage.

Finally, the term *alcoholic beverages* (rather than *alcohol beverages* or *beverage alcohol*) is just plain silly. Who ever heard of a whiskey, gin, vodka, or whatever, that drank too much whiskey, gin, vodka, or whatever? No one, that's who.

