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Edited Project:

CAIPIRINHA



The Caipirinha is the national drink of Brazil featuring its native distillate.

(Picture provided by Cuffs & Buttons)

Ingredients:	Yield: 1 Drink	Spec:
Lime quarters	4-5 wedges	
Simple syrup	¾ oz (22.5ml)	
Cachaça	2 oz (60ml)	
Garnish:		
None		

Mixing Instructions:

- 1. Add 4-5 limes in a mixing glass and gently muddle.
- 2. Add remaining ingredients.
- 3. Add ice and shake vigorously.
- 4. Pour entire contents into a double old-fashioned glass.
- 5. No garnish.

Service:

Double old-fashioned glass

MINT JULEP



The mint julep is a Southern cocktail that originated in the 18th century and became famous as the official drink of the Kentucky Derby.

(Picture provided by Cuffs & Buttons)

Ingredients:	Yield: 1 Drink	Spec:
Mint sprigs (Muddling)	2 sprigs	
Demerara syrup (2:1)	½ oz (15ml)	
Bourbon	2 oz (74ml)	
Garnish:		
Mint sprigs	2 sprigs	

Mixing Instructions:

- 1. In a mixing glass, muddle two hearty mint sprigs.
- 2. Measure remaining ingredients into glass.
- 3. Pour contents of mixing glass into a double old-fashioned glass.
- 4. Add crushed ice and top up to form a snow cone top.
- 5. Garnish with two sprigs of mint.

Service:

Julep or DOF glass

SMASH



A less formal julep-the cosmopolitan of the 1850s. The addition of muddled citrus is Dale DeGroff's update to the category from his days at the Rainbow Room in NYC late '80s to early '90s.

(Picture provided by Cuffs & Buttons)

Ingredients:	Yield: 1 Drink	Spec:
Mint sprigs (muddling)	2 sprigs	
Lemon muddling quarters	4-5 lemon quarters	
Simple syrup	¾ oz (22.5ml)	
Spirit (Whiskey, Rum, Brandy, Gin,	2 oz (60ml)	
Tequila)		
Garnish:		
Mint sprigs	2 sprigs	

Mixing Instructions:

- 1. Add mint sprigs, lemon quarters, and measure simple syrup into a mixing tin. Then muddle.
- 2. Measure base spirit into mixing tin.
- 3. Strain over pellet ice into a double old-fashioned glass.
- 4. Garnish with two mint sprigs.

SERVICE:

Double old-fashioned glass

MOJITO



Hailing from Cuba, the mojito is essentially a mint daiquiri. Use this preparation of the classic Cuban mojito when crushed ice is unavailable.

(Picture provided by Cuffs & Buttons)

Ingredients:	Yield: 1 Drink	Spec:
Fresh lime juice	¾ oz (30ml)	
Simple syrup	¾ oz (22.5ml)	
White rum	2 oz (60ml)	
Fresh mint	2 sprigs	
Club soda	To top	apx. 2 oz
Garnish:		
Mint sprigs	2 sprigs	

Mixing Instructions:

- 1. Add two sprigs of mint into a mixing tin.
- 2. Measure in fresh lime and simple syrup into tin and muddle with the mint.
- 3. Measure in rum and add ice.
- 4. Shake vigorously for proper chill and dilution.
- 5. Strain into a Collins glass over fresh ice.
- 6. Top with club soda.
- 7. Garnish with the tops of two mint sprigs.

Service:

Collins glass

PISCO SOUR



A South American cocktail featuring Pisco, a grape based spirit, native to Peru and Chile. Created in Lima at Morris' Bar in the early 1920s by bartender Victor Vaughen Morris, an American who had lived in Peru for several decades.

(Picture provided by Cuffs & Buttons)

Ingredients:	Yield: 1 Drink	Spec:
Egg white	1 egg white	
Freshly squeezed lime juice	¾ oz (22.5ml)	
Simple syrup	¾ oz (22.5ml)	
Pisco	2 oz (45ml)	
Garnish:		
Angostura bitters	Float	
Lemon peel zest over top and discard		

Mixing Instructions:

- 1. Combine all ingredients in a mixing glass.
- 2. Dry shake to whip egg white.
- 3. Add ice and shake vigorously.
- 4. Strain into a chilled sour glass.
- 5. Garnish with five drops of Angostura bitters lightly swirled with a straw.

Service: Cocktail glass

Summaries

What is alcohol?

Alcohol occurs naturally and it has been around since the beginning of time. Alcohol is a by-product of yeast (a microorganism in the air) eating sugar; think of a ripe piece of fruit dropping to the ground and opening up. The yeast in the air meets the natural sugars of the fruit and alcohol is the hydrocarbon that is excreted, along with carbon dioxide. Very simply put, this is the process of fermentation.

What is fermentation?

Any sugary liquid exposed to the open air is likely to ferment—that is, become infected by yeasts—which eat, reproduce, and ultimately die; either through starvation (having eaten up all the available sugars) or by poisoning themselves with their own waste. In sufficient concentration, alcohol kills yeast and fixes the maximum amount of alcohol one can expect from a fermented beverage at 15 to 16 percent (or 11 to 15 percent in most wines). ¹

Beer and wine are fermented beverages that have been imbibed since before recorded history and have been a vital part of human development. Alcohol has been used for fortification, as a preservative, and medicinally alcohol can kill germs both topically and internally. Our predecessors were savvy to mix beer and wine to local water sources for purification.

Beer is derived from grain, which is not inherently sweet, so the starches of the grain must be converted into sugars. Thousands of years ago, folks figured out that if you make a soup out of water and recently sprouted grains, then boil it to remove impurities, the yeasts that live in the air and even in our bodies will do the rest². In beer production the carbon dioxide is retained and thus beer has bubbles.

¹ Beverage Alcohol Resource

² Bar Smarts

Wine is derived from fruits and saps that are naturally sweet and thus the process is much simpler. As soon as a ripe fruit is crushed, the natural yeasts begin to convert the sugar into wine. Our ancestors would collect the fruit they did not eat and store in a container (to avoid bugs) and the fermentation would begin with the juice that was let loose. Naturally the lid on such a container would shake loose as carbon dioxide escaped, and unless producing sparkling wine, the carbon dioxide is allowed to dissipate for wine production.

What is distillation?

The act of distilling is as simple as boiling water, meaning the action of turning a liquid into gas. In relation to alcohol the reason for distillation is to create a distilled spirit (a beverage with stronger alcohol content). Distillation does not create alcohol but merely concentrates it. Distilled spirits are desirable because the higher concentration of alcohol makes them last longer as a natural preservative against bacteria, climates, and time. Its uses are abundant above and beyond drinking.

All distilled spirits start from fermented beer and wine. Taking the fermented beer or wine and adding heat starts the distillation process. Alcohol boils at a lower temperature than water; alcohol begins to boil at 173 degrees Fahrenheit and water begins to boil at 212 degrees Fahrenheit. Thus, by taking the fermented matter and putting it over a fire and controlling the temperature to a degree where only the alcohol begins to vaporize and the water remains liquid form, the alcohol rich steam can be collected, separated, and allowed to condense back into a liquid, essentially discarding the rest. This process of distillation is derived from the Latin verb *distillare*, and means, "to drip down". Aristotle wrote about this process between 368 to 348 B.C., and he was the one to give the additive "spirit" to the distillation process.

How distillation works

The origin of distillation is unknown and there is much evidence that show that the basic technology had been around, discovered, and re-

discovered, but generally not to make booze. This basic technology generally consisted of some kind of fireproof pot to hold the fermented matter (beer or wine), and a condensing pot fit above that was designed to collect the alcohol rich vapors. It is believed that in the area that is modern day Pakistan, exists the oldest site for a commercial distillery that dates between 500 to 300 B.C. where they were utilizing an "elephant head" device for beverage distillation of rice, palm tree sap, and sugarcane. The "elephant's head" takes the form of a large pottery bulb with an opening in the bottom to fit over the mouth of the pot, and downward-slanting tube sticking out of one side (hence the name). The vapor passes up into the bulbous head and begins to cool, and then moves through the tube into another pot, most likely cooled by running water, and condenses back into liquid. Evidence supports that early forms of distillation were being utilized (mostly for medicinal purposes) in India, the Middle East, and China. In fact, it was the Arabs from whom we get the word alcohol, termed from "al-kohl" meaning "the essence" or "final reduction". It was the Arab medicinal scientists that gave us the "anbig" or "alembig" still, advancing on the "elephant head" device. Alembic, or copper pot stills are still used today.

It wasn't until 1100 A.D. that the Europeans began to distill alcohol. It seems to have started with the Italian scholars and monks at the Salerno School of Medicine, where they recognized that imbibing distilled "spirits" helped them "get closer to God".

By the 1500s, the Italians were using distillation to make herbal liqueurs, the French to make grape Brandy, Eastern Europeans to make vodka, the Germans to make schnapps, the Scotch and Irish to make whiskey, and the Dutch to make "genever" or gin. During this time many advancements were being made, like multiple distillations to increase the purity of the alcohol, and the removal of "heads"—the acetone, methanol, and other undesirable compounds, and the "tails" known as the fossil oils and other undesirable matter. The craft of distillation was being defined and many people were dedicating their life to the pursuit of quality and bottling the "heart" of their respective spirit. By the end of the century, distillation and the commercial business of bottled alcohol was in full bloom. Monasteries, apothecaries, and general stores were carrying branded bottles of these distilled spirits, *aqua vitae*, or "water of life".

With all this newfound dedication to distilled spirits, it was only a matter of time before the copper pot still was scrutinized for its inefficiency. With a pot still there generally needs to be at least two runs, if not more, and the pot must be cooled down and cleaned after every run. It is also hard to get a pure spirit from a pot still; something many craft distillers actually prefer as it enables them to retain more flavor in their product. So, naturally as the nineteenth century rolled around and the industrial age took hold, the still was due for a makeover, and it came by way of the continuous still.

There are many people who claim to have created the continuous still, and each one of them probably has a legitimate claim to the technology, but for our purposes now, let's just focus on the fact that several of these people took out a patent on their ideas, so the still is often called today, a continuous still or a patent still.

The beauty of this new design involved several things such as:

- Being designed with a series of perforated plates inside.
- The washes are run in the middle and drips down from plate to plate.
- The steams from the residue bubbling away at the bottom of the column rises through the plates and condenses and drips back down; but also vaporizes the lighter parts of the wash:
 - Congeners, some water, and of course alcohol.
- As this vapor rises further, it condenses on the plates above.
- Whichever plate the flavors of the alcohol you prefer ends up at will be your final product: 85 to 95% pure.
- And lastly, this can be done continuously without having to stop and clean the still after every use, and makes spirits cheaper and more efficient.

Today, both the pot still and the continuous still are utilized, and each has their merits. Most artisanal craft distillers swear by pot distillation, and modernized spirits striving for more purity than flavor prefer the continuous still. Either way, both are being effectively utilized today and distilled spirits have never been better.

Beyond Distillation

Lastly, spirits as we know them today are generally labored over and perfected by distillers who are extremely passionate about deriving the best product possible. There are many determinates as to what goes into making a good spirit such as where did it start? How is the quality of soil to grow the grains, fruits, yeast strains, and the mash make-up? Is the chosen still well maintained? Did the distiller make the best "cut" from the "heads" and "tails"? Once out of the still, dilution is the subject of debate. For general consumption, the alcohol is brought down to 40 to 60 percent of the total. However, dilution does not finish the process, as there are still congeners to be dealt with and the flowing can soften them by adding, subtracting, or changing.

Taking note from the Italians who were the first Europeans to distill, they were keen on adding flavor to raw spirit by sweetening it with herbs, spices, fruits, resulting in liqueurs. But not everyone was into the idea of adding sweeteners. Take a look at the Dutch and later the British who added juniper berries to their spirits and other herbs and spices allowing their spirits to be dry and flavorful.

In the matter of subtraction, filtration is the key. Naturally, the Russians and Polish come to mind for their work to yield a clean tasting and light spirit that was essentially removed from having any pronounced flavor. Through much experimentation they found charcoal to be a preferred method. A technique that was later employed by makers of Tennessee whiskey.

Finally, we have the ability to change, or transform, the congeners of the raw spirit with the time worn method of aging. Since the beginning,

it has been known that aging wine can enhance its flavor, so it was only a matter of time before this theory was employed to spirits with a spectacular result. Aging can happen in many ways. These ways include steel casks, sherry casks, and oak casks, French, or American oak barrels, charred or non-charred, in heated or in cold climates, and for lengths that vary between six months to 20+ years. Again, the possibilities and results are limitless and with every spirit brand there is a new expression and consideration to all the above.

In conclusion of our journey into distillation, we see that there are many factors that go into making spirits, but at the end of the day, it's the taste that matters. Taste is personal and is subjective. And regardless of if you like a certain spirit expression, or not, you now understand the process to deriving a quality spirit. The final say is yours and here are the things you should think about and evaluate when tasting spirits:

- Flavors: Sweet, salty, sour, bitter, or umami.
- Textures: Astringent, hot, cold, spicy, soft, bland, light, delicate, rich, full-bodied, velvety, powerful.
- Intangibles: Complexity, length.





Tequila & Mezcal

Definition:

Tequila is a distilled spirit made from fermented aguamiel from the agave plant (also called Maguey) and controlled by the Mexican government. The best expressions of Tequila are 100% agave, and even better is the 100% Blue agave. The Blue Agave is one of more than 400 hundred types of agaves that grows around the world. A succulent from the lily family, this specific variety of Agavaceae is named tequilana Weber Azul that is found in five Mexican states.

Mezcal is made in Oaxaca, in southern Mexico, and can be made from other agave varieties such as Espadin, Sotol, and Tobala. The primary difference between Tequila & Mezcal is not the agave variety but how the agave hearts are cooked.

Ingredients:

Agave plant

Origin: Country of Mexico

Tequila: Jalisco, Guanajuato, Tamaulipas, Nayarit, Michoacán

Mezcal: Oaxaca, Chihuahua

Styles:

-Mixto (Gold) or Joven "Abocado"

This style of Tequila is made from a mix of sugars. It must be made with 51% agave sugars, but the remaining 49% can include molasses and caramels.

-Plata (Silver) or Blanco (White)

Tequila that has been aged no more than two months (60 days).

-Repasado (Rested)

Tequila that has been aged between two to 12 months in any size oak container.

-Anjeo (Aged)

Tequila that has been aged one to three years in a small oak barrel.

-Extra Anjeo

Tequila that has been aged in a small oak barrel for more than three years.

How:

To make a spirit from agave, agave piñas (the heart of the plant, called piñas because they resemble large pineapples, can weigh 60 to 125 pounds) must first be cooked and then shredded, and then the juice is milled from the materials. That juice is fermented and ready to be distilled. Distillation varies from copper pots to sleek continuous stills. Most quality Tequila is the result of a double distillation in copper pots or alembic stills. ³

In general, the same process is required to create Mezcal. The greatest difference between Tequila and Mezcal is not the agave variety, but the method by which the piña of the agave plant is roasted or cooked. Mezcal is usually roasted in an earth and stone pit, for days if not weeks, and as a result has a smoky flavor. Tequila piñas are usually steamed in autoclaves— large cylindrical, stainless-steel steamers. High

³ Beverage Alcohol Resource

quality Tequila is most often made from piñas that have been baked in clay ovens.

Note: Some materials state that aguamiel is fermented into a kind of milky beer called pulque and then is distilled. This is incorrect. Pulque cannot be distilled; it turns into something like gum in the still. To make tequila or mezcal, the agave hearts are cooked and shredded (or sometimes shredded then cooked) but they <u>must be cooked before fermentation</u>. The juice of the agave hearts is pressed out and then fermented; now the fermented juice can be distilled.



Credit: Unknown source



Credit: Tequila.net 2008

Rum & Cachaça

Definition:

Rum is a liberal category of spirit. It can be made anywhere in the world. It must be made from sugarcane, sugarcane juice, molasses, or any sugar derivative. It can be pot stilled, column stilled, non-aged, or aged at any length, and filtered, or non-filtered. Rum can also be flavored.

Ingredients:

Sugarcane, sugarcane juice, molasses, or its by-products

Flavored rums have the additions of various spices and natural or artificial flavors.

Origin:

Countries throughout the world.

Rum: Australia, Cuba, Guyana, Haiti, Jamaica, and Puerto Rico

Rhum: Martinique, Guadalupe, Marie-Galante

Cachaca: Brazil

Traditions:

-English

The oldest tradition in rum is characterized by its rich, heavy body, and "funkiness". This style of rum is made from diluted molasses. Molasses is the thick, sticky, residue left over from producing crystallized sugar from sugarcane juice. Obviously, when settlers realized that this by-product of sugar production still retained enough sugar to ferment, the game was on. Generally, these styles of rums are aged, or bottled at high proofs. The rums of Australia, Barbados, Guyana, Grenada, India, and Jamaica exemplify the English tradition.

-French & Brazilian

Overall, the noted stylization of French rhums as exemplified in the rhums of the French Caribbean and in particular, the island of Martinique is the distillation of sugarcane juice (rather than molasses, and usually from the first pressing). Traditionally, these rhums were made in cognac stills, although today the continuous still has been embraced and widely utilized. This style of rhum contains many of the same "funkiness" as would an English style rum but is much lighter in body. Rhum made in the French tradition is called "Rhum Agricole".

Brazil's rum, cachaça, is the only other style of rum that insists on using fresh sugarcane juice for its production. There is a wide range of cachaças on the market, from small craft distillers to massive industrial distillers, thus the range of quality in the spirit is vast. Cachaça is only made in Brazil and is one of the fastest growing spirits in the world.

-Spanish

One of the later traditions to emerge, largely due to the ingenuity of Don Facundo Bacardi, was his use of the latest rum-making technologies in his homeland of Cuba. Bacardi took the advancements of column distillation, charcoal filtering, and barrel aging to transform molassesbased rum into a sweet, elegant, and smooth style of rum which are generally light in body, but with notes of vanilla and spice. Other parts of the Spanish Caribbean soon followed including the Dominican Republic, and Puerto Rico.

-Modern & International

Taking advantage of the non-restrictive genre of the rum category, many new stylizations of rum have cropped up worldwide. These modern makers are looking to try new things and not stick to traditional confines. Generally, molasses based modern rums tend to be more purified and model themselves on vodka, looking to be clean and light-bodied, with a neutral flavor. These rums are almost always column stilled, but some of the aged varieties are blends of pot and column distillation. Some of the aged rums of the modern tradition are using American oak barrels to create sugarcane bourbon.

Style Guide

• AP style applied for text, numbers, and pictures.

The original document before the changes:

CAIPIRINIA



The national drink of Brazil, featuring its native distillate, Cachaca.

INGREDIENTS:	YIELD: 1 Drink	SPEC:
Lime Quarters	4-5	
Simple Syrup	¾ oz (22.5ml)	
Cachaca	2 oz (60ml)	
GARNISH:		
None		

MIXING INSTRUCTIONS:

- 6. Add 4-5 limes in a mixing glass and gently muddle
- 7. Add remaining ingredients
- 8. Add ice and shake vigorously
- 9. Pour entire contents into a Double Old Fashioned Glass
- 10. No garnish

SERVICE:

Double Old Fashioned Glass

MINTJULEP



INGREDIENTS:	YIELD: 1 Drink	SPEC:
Mint Sprigs (Muddling)	2	
Demerara Syrup (2:1)	½ oz (15ml)	
Bourbon	2 ½ oz (75ml)	

GARNISH:		
Mint Sprigs	2	

MIXING INSTRUCTIONS:

- 6. In a mixing glass, muddle 1 hearty mint sprig
- 7. Measure remaining ingredients into glass
- 8. Pour contents of mixing glass into a dbl O.F. glass
- 9. Add crushed ice, and top up to form a snow cone top
- 10. Garnish with 2 sprigs of mint

SERVICE:

Julep OR Double Old Fashioned glass

SMASH



A less formal julep. The cosmo of the 1850's. The addition of muddled citrus is Dale Degroff's update to the category from his days at the Rainbow Room in NYC late 80's/early 90's.

INGREDIENTS:	YIELD: 1 Drink	SPEC:
Mint Sprigs (muddling)	2	
Lemon Muddling Quarters	4-5	
Simple Syrup	¾ oz (22.5ml)	
Spirit (Whiskey, Rum, Brandy, Gin, Tequila)	2 oz (60ml)	
GARNISH:		
Mint Sprigs	2	

- 5. Add mint sprigs, lemon quarters, and measure simple syrup into a mixing
- tin. Then muddle.
- 6. Measure base spirit into mixing tin.
- 7. Strain over pellet ice into a double old fashioned glass
- 8. Garnish with 2 mint sprigs

SERVICE:

Double Old Fashioned Glass

ΜΟΙΙΤΟ



Hailing from Cuba, the mojito is essentially a mint daiquiri. Use this preparation of the classic Cuban Mojito- when crushed ice is unavailable.

INGREDIENTS:	YIELD: 1 Drink	SPEC:
Fresh Lime Juice	¾ oz (30ml)	
Simple Syrup	¾ oz (22.5ml)	
White Rum	2 oz (60ml)	
Fresh Mint	2 sprigs	
Club Soda	To top	apx. 2 oz
GARNISH:		
Mint Sprigs	2	
	•	

MIXING INSTRUCTIONS:

8. Add 2 sprigs of mint into a mixing tin

- 9. Measure in fresh Lime and simple into tin and muddle with the mint
- 10. Measure in Rum and add ice
- 11. Shake vigorously for proper chill and dilution
- 12. Strain into a Collins glass over fresh ice
- 13. Top with Club soda
- 14. Garnish with the tops of two mint sprigs

SERVICE:

Collins Glass

PISCOSOUR



A South American cocktail featuring Pisco, a grape based spirit, native to Peru and Chile. Created in Lima at Morris' Bar in the early 1920s by bartender Victor Vaughn Morris, an American who had lived in Peru for several decades.

INGREDIENTS:	YIELD: 1 Drink	SPEC:
Egg White	1	
Freshly Squeezed Lime Juice	¾ oz (22.5ml)	
Simple Syrup	³₄ oz (22.5ml)	
Pisco Porton	2 oz (45ml)	
GARNISH:		
Angostura Bitters	Float	
Lemon Peel- Zest over top and discard		

MIXING INSTRUCTIONS:

- 6. Combine all ingredients in a mixing glass
- 7. Dry shake to whip egg white
- 8. Add ice and shake vigorously

- 9. Strain into a chilled sour glass
- 10. Garnish with a 5 drops of Angostura Bitters lightly swirled w/ a straw

SERVICE:

Cocktail Glass

This is a different section in the manual that I chose to edit:

What is alcohol?

Alcohol occurs naturally and it has been around since the being of time. Alcohol is a by-product of yeast (a microorganism in the air) eating sugar; think of a ripe piece of fruit dropping to the ground and opening up. The yeast in the air meets the natural sugars of the fruit and alcohol is the hydrocarbon that is excreted, along with carbon dioxide. Very simply put, this is the process of fermentation.

What is fermentation?

Any sugary liquid, exposed to the open air, is likely to ferment- that is, become infected by yeasts which eat, reproduce and ultimately die, either through starvation (having eaten up all the available sugars) or by poisoning themselves with their own waste: in sufficient concentration, alcohol kills yeast. This fixes the maximum amount of alcohol one can expect from a fermented beverage at 15 to 16 percent (or 11 to 15 percent in most wines). ⁴

Beer and wine are fermented beverages that have been imbibed since before recorded history and have been a vital part of human development. Alcohol has been used for fortification, as a preservative, and medicinally.... alcohol can kill germs both topically and internally and our predecessors were savvy to mix beer and wine to local water sources for purification.

Beer is derived from grain, which is not inherently sweet, so the starches of the grain must be converted into sugars. Thousands of years ago, folks figured out that if you make a sort of soup out of water and recently sprouted grains, then boil it to remove impurities, then the yeasts that live in the air and even in our

⁴ Beverage Alcohol Resource

bodies will do the rest⁵. In beer production the carbon dioxide is retained and thus beer has bubbles.

Wine is derived from fruits and saps that are naturally sweet and thus the process is much simpler. As soon as a ripe fruit is crushed the natural yeasts begin to convert the sugar into wine. Our ancestors would collect the fruit they did not eat and store in a container (to avoid bugs) and with the juice that was let loose the fermentation would begin. Naturally the lid on such a container would shake loose as carbon dioxide escaped, and unless producing sparkling wine, the carbon dioxide is allowed to dissipate for wine production.

What is distillation?

The act of distilling is as simple as boiling water, meaning the action of turning a liquid into gas. In relation to alcohol the reason for distillation is to create a distilled spirit, a beverage with stronger alcohol content- distillation does not create alcohol but merely concentrates it. Distilled spirits are desirable because the higher concentration of alcohol makes them last longer as a natural preservative against bacteria, climates, and time. Its uses are abundant above and beyond drinking.

All distilled spirits start from fermented beer and wine. Taking the fermented beer or wine and adding heat starts the distillation process. Alcohol boils at a lower temperature than water; alcohol begins to boil at 173 degrees Fahrenheit and water begins to boil at 212 degrees Fahrenheit. Thus by taking the fermented matter and putting it over a fire and controlling the temperature to a degree where only the alcohol begins to vaporize and the water remains liquid form, the alcohol rich steam can be collected, separated, and allowed to condense back into a liquid, essentially discarding the rest. This process of distillation is derived from the Latin verb *distillare*, and means, "to drip down" and Aristotle wrote about this process in 327 B.C. and he was the one to give the additive "spirit" to the distillation process.

⁵ Bar Smarts

How distillation works

The origin of distillation is unknown and there is much evidence that show that the basic technology had been around, discovered and re-discovered, adinfinum, but generally not to make booze. This basic technology generally consisted of some kind of fireproof pot to hold the fermented matter (beer or wine) and a condensing pot fit above that was designed to collect the alcohol rich vapors. It is believed that in the area that is modern day Pakistan, exists the oldest site for a commercial distillery that dates between 500-300 B.C. where they were utilizing an "elephant head" device for beverage distillation of rice, palm tree sap, and sugarcane. The "elephant's head" takes the form of a large pottery bulb with an opening in the bottom to fit over the mouth of the pot, and downward-slanting tube sticking out of one side (hence the name). The vapor passes up into the bulbous head and begins to cool, and then moves through the tube into another pot, this one most likely cooled by running water, and condenses back into liquid. Evidence supports that early forms of distillation were being utilized (mostly for medicinal purposes) in India, the Middle East, and China. In fact is was the Arabs from whom we get the word alcohol, termed from "al-kohl" meaning "the essence" or "final reduction" as well it was the Arab medicinal scientist that gave us the "anbig" or "alembig" still, advancing on the "elephant head" device. Alembic, or copper pot stills are still used today.

It wasn't until 1100 that the Europeans began to distill alcohol. It seems to have started with the Italian scholars and monks at the Salerno School of Medicine, where they recognized that imbibing distilled "spirits" helped them "get closer to God".

By the 1500's the Italians were using distillation to make herbal liqueurs, the French to make grape brandy, Eastern Europeans to make vodka, the Germans schnapps, the Scotch and Irish to make whiskey, and the Dutch "genever" gin. During this time many advancements were being made, like multiple distillations to increase the purity of the alcohol, and the removal of "heads"the acetone, methanol, and other undesirable compounds, and the "tails"- the fusel oils and other undesirable matter. The craft of distillation was being defined and many people were dedicating their life to the pursuit of quality and bottling the "heart" of their respective spirit. By the end of the century, distillation and the commercial business of bottled alcohol was in full bloom. Monasteries, apothecaries, and general stores were carrying branded bottles of these distilled spirits, *aqua vitae*, "water of life".

With all this newfound dedication to distilled spirits it was only a matter of time before the copper pot still was scrutinized for its inefficiency. With a pot still there generally needs to be at least two runs, if not more, and the pot must be cooled down and cleaned after every run. It is also hard to get a really pure spirit from a pot still (something many craft distillers actually prefer as it enables them to retain more flavor in their product). So, naturally as the nineteenth century rolled around and the industrial age took hold, the still was due for a makeover, and it came by way of the continuous still.

There are many people who claim to have created the continuous still, and each one of them probably has a legitimate claim to the technology, but for our purposes now, lets just focus on the fact that several of these people took out a patent on their ideas, so the still is often called today, a continuous still or a patent still. The beauty of this new design were several things... designed with a series of perforated plates inside, the wash is run in the middle and drips down from plate to plate, the steam from the residue bubbling away at the bottom of the column rises through the plates, in part condensing and dripping back down, but also in part vaporizing the lighter parts of the wash- congeners, some water, and of course alcohol. As this vapor rises further, it condenses on the plates above. Figure out which plate the flavors of the alcohol you prefer ends up at, and there's your tap- final product: 85-95% pure. And lastly, this can be done continuously without having to stop and clean the still after every use, and in general makes spirit cheaper and more efficiently.

Today, both the pot still and the continuous still are utilized, and each has their merits. Most artisanal craft distillers swear by pot distillation, and modernized spirits striving for more purity than flavor prefer the continuous still. Either way, both are being effectively utilized today and distilled spirits have never been better.

Beyond Distillation

Lastly, spirits as we know them today are generally labored over and perfected by distillers who are extremely passionate about deriving the best product possible. There are many determinates as to what goes into making a good spirit... where did it start... the quality of soil to grow the grains, and fruits, the yeast strains, the mash make-up, is the chosen still well maintained, did the distiller make the best "cut" from the "heads" and "tails". Once out of the still, dilution is the subject of debate. For general consumption, the alcohol is brought down to 40-60 percent of the total. But dilution does not finish the process, as there are still congeners to be dealt with and the flowing can soften them: adding, subtracting, or changing.

Taking note from the Italians who were the first Europeans to distill, they also were keen on adding flavor to raw spirit by sweetening it with herbs, spices, fruits, etc, resulting in liqueurs. But not everyone was into the idea of adding sweetener, so take a look at the Dutch and later the British who added juniper berries to their spirits and other herbs and spices allowing their spirits to be dry and flavorful.

In the matter of subtraction, filtration is the key. Naturally the Russians and Poles come to mind for their work to yield a clean tasting and light spirit that was essentially removed from having any pronounced flavor. Through much experimentation they found charcoal to be a preferred method. A technique that was later employed by makers of Tennessee whiskey.

Finally we have the ability to change, or transform, the congeners of the raw spirit with the time worn method of aging. Since the beginning it has been known that aging wine can enhance its flavor, so it was only a matter of time before this theory was employed to spirits with a spectacular result. Aging can happen in many ways... steel casks, sherry casks, and oak casks... French, or American oak barrels, charred or non-charred, in heated or in cold climates, and for lengths that vary per 6 months to 20+ years. Again the possibilities and results are limitless and with every spirit brand there is a new expression and consideration to all the above.

In conclusion of our journey into distillation, we see that there are many factors that go into making spirits, but at the end of the day, it's the taste that matters. Taste is personal and it is subjective. And regardless if you like a certain spirit expression, or not, you now understand the process to deriving a quality spirit. The final say is yours and here are the things you should think about and evaluate when tasting spirits:

Flavors: Sweet, salty, sour, bitter, or umami

<u>Textures:</u> Astringent, hot, cold, spicy, soft, bland, light, delicate, rich, full-bodied, velvety, powerful

Intangibles: Complexity, length

Pot & Column Distillation



Tequila & Mezcal

Definition:

Tequila is a distilled spirit made from fermented aguamiel from the Agave plant (also called Maguey) and controlled by the Mexican government. The best expressions of Tequila are 100% Agave, and even better is the 100% Blue Agave. The Blue Agave is one of more than 400 hundred of types of Agave that grows around the world. A succulent from the lily family this specific variety of agavacea is named Tequilana Weber Tipo Azul that is found in five Mexican states.

Mezcal is made in Oaxaca, in southern Mexico and can be made from other Agave varieties such as Espadin, Sotol, and Tobola.

The primary difference between Tequila & Mezcal is not the agave variety but how the Agave hearts are cooked

Ingredients:

Agave plant

Origin:

Country of Mexico

Tequila: Jalisco, Guanajuato, Tamaulipas, Nayarit, Michoacán

Mezcal: Oaxaca, Chihuahua

Styles:

-Mixto= Gold, or Joven Abacado

This style of Tequila is made from a mix of sugars. It must be made with 51% agave sugars, but the remaining 49% can include molasses and caramels.

-Plata (Silver) or Blanco (White)

Tequila that has been aged no more than 2 months, or 60 days.

-Repasado (Rested)

Tequila that has been aged between 2 to 12 months in any size oak container.

-Anjeo (Aged)

Tequila that has been aged 1 to 3 years in a small oak barrel.

-Extra Anjeo

Tequila that has been aged in a small oak barrel for more than 3 years.

How:

To make a spirit from Agave, agave pinas (the heart of the plant, called pinas because they resemble large pineapples, can weigh 60 to 125 pounds) must first be cooked and then shredded, and then the juice is milled from the materials. That juice is fermented and ready to be distilled. Distillation varies from copper pots to sleek continuous stills. Most quality Tequila is the result of a double distillation in copper pot or alembic stills.⁶

In general, the same process is required to create Mezcal. The greatest difference between Tequila and Mezcal is not the agave variety but the method by which the pina of the agave plant is roasted or cooked. Mezcal is usually roasted in an earth and stone pit, for days if not weeks, and as a result has a smoky flavor. Tequila pinas are usually steamed in autoclaves: large cylindrical, stainless steel steamers. High quality Tequila is most often made from pinas that have been baked in clay ovens.

Note- some materials state that aguamiel is fermented into a kind of milky beer called pulque and then is distilled. This is incorrect. Pulque cannot be distilled; it turns into something like gum in the still. To make tequila or mezcal, the agave

⁶ Beverage Alcohol Resource

hearts are cooked and shredded (or sometimes shredded then cooked) but they <u>must be cooked before fermentation</u>. The juice of the agave hearts is pressed out and then fermented; now the fermented juice can be distilled.





Rum & Cachaca

Definition:

Rum is a pretty liberal category of spirit. It can be made any where in the world. It must be made from sugarcane, sugarcane juice, molasses, or any sugar derivative. It can be pot stilled, column stilled, non-aged, or aged at any length, and filtered, or non-filtered. Rum can also be flavored.

Ingredients:

Sugarcane, sugarcane juice, molasses, or its by products

Flavored Rums have the additions of various spices and natural or artificial flavors

Origin:

Countries throughout the world

Rum: Australia, Cuba, Guyana, Haiti, Jamaica, and Puerto Rico...

Rhum: Martinique, Guadalupe, Marie Galante

Cachaca: Brazil

Traditions:

-English

The oldest tradition in Rum and is characterized by its rich, heavy body, and "funkiness". This style of Rum is made from diluted molasses. Molasses is the thick, sticky, residue left over from producing crystallized sugar from sugarcane juice. Obviously when settlers realized that this byproduct of sugar production still retained enough sugar to ferment the game was on. Generally these style of rums are aged, or bottled at high proofs. The Rums of Australia, Barbados, Guyana, Grenada, India, and Jamaica exemplify the English tradition.

-French & Brazilian

Overall the noted stylization of French Rhums as exemplified in the rhums of the French Caribbean and in particular, the island of Martinique is the distillation of sugarcane juice (rather than molasses, and usually from the first pressing). Traditionally these rhums were made in cognac stills, although today the continuous still has been embraced and widely utilized. This style of rhum contains many of the same "funkiness" as would an English style rum, but is much lighter in body. Rhum made in the French tradition is called "Rhum Agricole".

Brazil's rum, Cachaca, is the only other style of rum that insists on using fresh sugarcane juice for its production. There is a wide range of Cachaca's on the market, from small craft distillers to massive industrial distillers, thus the range of quality in the spirit is vast. Cachaca is only made in Brazil and is one of the fastest growing spirits in the world.

-Spanish

One of the later traditions to emerge and mostly due to the ingenuity of Don Facundo Bacardi who employed the latest technologies of making rum to his home of Cuba. Bacardi took the advancements of column distillation, charcoal filtering, and barrel aging to transform molasses based rum into a sweet, elegant, and smooth style of rum which are generally light in body but with notes of vanilla and spice. Other parts of the Spanish Caribbean soon followed including the Dominican Republic, and Puerto Rico.

-Modern & International

Taking advantage of the non-restrictive genre of the rum category, many new stylizations of rum have cropped up worldwide. These modern makers are looking to try new things and not stick to traditional confines. Generally molasses based modern rums tend to be more purified and model themselves on the vodka, looking to be clean and light bodied, with a neutral flavor. These rums are almost always column stilled, but some of the aged varieties are blends of pot and column distillation. Some of the aged rums of the modern tradition are using American oak barrels to create sugarcane bourbon.