



## Object of the Newsletter

*To promote the appreciation of fine Scotch Whisky, the area from which it comes, the people that inhabit the land and it's history. By the way, I do not profess to be an expert, I am merely expressing an opinion on the whiskies I am tasting.*

I now look at the Macallan 'M' which I tasted at the "Scotch" bar in the Balmoral hotel, Edinburgh where Tracey and I were staying in May of this Year. First of all, if you get the chance to stay at the Balmoral, do it, the service is beyond exceptional, and it has the "Scotch" bar with over 400 Whiskies. It is also a short walk from the Royal mile, any way enough of the hotel advice. I had just given a whisky presentation about 2 weeks prior to this trip, and during the presentation I referenced the 5 most expensive whiskies ever sold, with the Macallan 'M' being the most expensive, (albeit for a bottle 9 times the size of a normal Bottle) which sold for \$631,850. Having said that, I never expected to come across a bottle on my travels, much less taste some of the contents!

So I'm talking whisky with the bar manager, specifically aromas, and he says "have you smelled the Macallan 'M'?" WHAT!! You have a bottle here, yes he had a bottle. As he was opening up the cabinet to get the bottle out, my lovely wife said "You should ask how much it is for a taste?" I said, no, it would be too much, she insisted I ask, so I did.

The cost (converted) was \$220.00 for a dram, well as I need to try whiskies to write about them, I felt obliged (wink, wink) to try it. My wife felt obliged to video me tasting it, and I'm glad she did, it is the only whisky that has ever given me goosebumps and made the hair on the back of my neck stand up. WOW!!! Just WOW!!!

You can buy Macallan 'M' for around \$5000.00 a bottle.

### Tasting Notes;

**Nose** - Ripe fruits, nutmeg & cinnamon

**Palate** - Plum, toffee, hint of smoke

**Finish** - Long and full with raisins & sultanas

*"Slainte Mhath"*

*Paul Bissett*





## USING OAK BARRELS TO AGE WHISKEY

### Whiskey Barrels – Oak Gives Real Character to the Whiskey

Whiskey barrels and the interaction between the oak and the whiskey and is one of the most interesting, if not completely understood components of the whiskey production process.

The quality of the Whisky barrels is carefully monitored because the new spirit is to gain character and color from the wood in which it rests.

Some casks will previously have been used to mature Oloroso, fino or amontillado sheries; some will have contained bourbon and some will be oak.

The type of Whiskey barrel used for maturation will have been determined by the Master Blender who is seeking a particular character and continuity of the whiskey.

Only after a minimum of three years maturation can the new make spirit be legally defined as Scotch Whisky.

In practice, most Scotch Whisky matures for much longer – from five to fifteen, twenty, or twenty-five years and sometimes longer.

It is this lingering period during which Scotland's cool, clean air steals through the porous oak of the casks and charms their contents, contributing further to the smooth and golden character of each distillery's unique creation.

A proportion of the whiskey in each cask evaporates annually and is lost to the heavens. This is known as the "angels' share".

### Why Oak?

One of the most frequently asked questions is "Why do whiskey makers use Oak Whiskey barrels?"

The reason that Oak is utilized is its unique physical and chemical nature. Oak has strength – physically, its wide radial rays give strength when shaped for a cask.

Oak is also a "pure wood" as opposed to pine or rubber trees which contain resin canals that can pass strong flavors to maturing whisky.

But it's not just the Oak itself, it's the transformation that happens to the Oak as a result of the seasoning and heating treatments during the coopering process – these result in the production of pleasant-tasting Oak lactones.

Whiskey barrels made from Oak have three broad effects on the spirit:

As an additive – It adds to the taste and aroma of the spirit by providing desirable elements from the cask. For example: vanillin, Oak lactone (coconut, bourbon character), toastiness, wood sugars and color. As an agent that removes undesirable elements from new make spirit. For example: sulphur compounds and immaturity.





Oak barrels also interact with the spirit. It adds extractive wood elements from the cask and converts them to organoleptically desirable elements.

For example it will change tannins to acetals, and change acetic acid to fruity esters.

It has been said that there are 5 specific constituents of Oak and identifies how they influence maturing spirit:

**Cellulose** – Which has virtually no effect other than to hold the wood together.

**Hemicellulose** – Which consists of simple sugars that break down when heated and provide:

Body: through the addition of wood sugars

“Toasty & caramelized aromas & flavors”

Color (unaged or “new make” whisky is a clear liquid)

**Lignin** – The binding agent that hold the cellulose in wood together which, when heated yield:

Vanillin

Sweet, smoky and spice aromas

**Oak Tannins\*** – Which play an essential role in maturation by enabling oxidation and the creation of delicate fragrance in spirits. Tannins combine with oxygen and other compounds in the spirit to form acetals over time.

\*Naturally occurring preservative compounds with a slightly puckery, astringent taste in the mouth, similar to the effect of strong black tea or fresh walnuts.

**Oak Lactones** – Resulting from lipids in the Oak, they increase dramatically during toasting and charring and can pass on a strong woody and perhaps coconut character; lactones give bourbon its distinctive character; and occur in higher concentrations in American Oak than in European varieties.

### **Will any Oak Whiskey barrel do?**

Just three species of oak are used for wine and whisky barrel making or cooperage:

**Quercus Alba**, “White Oak” (America). Commonly referred to as “American Oak” and is the most commonly used variety in whisky cooperage.

More vanillin than European varieties Fast growth High in lactones, which when toasted, provide woody, vanilla, and coconut flavors

**Quercus Petraea**, “Sessile Oak” (Europe). Found across Europe, notably in France. Most commonly used for wine cooperage.

Slow growth, fine tannins and more vanilla (compared to Pedunculate)

Most common species in Tronçais forest



Spanish Oak generates more raisin, prune-like flavors.

Most commonly used for cognac and sherry cooperage.

Fast growth, more tannins, thus more oxidative characteristics in the matured products (compared to Sessile).

Most common species in Limousin forest

There are a number of other factors in how wood affects whisky. Chief among them are:

- Growth rate of the “donor trees”;
- Method and length of time to dry the wood;
- Toasting and charring during cooperage.

### **Impact of Oak Growth Rate: Slower is Better**

Winemakers are convinced of the relationship between Oak growth rates and the flavor and quality of their wines; while in whiskey, this factor is not widely considered.

It is known that slow growth Oak used in the making of whiskey barrels has more of the “good stuff” – especially vanillas and Oak lactones. White Oak is “fast-growth.”

Once the wood is cut, the method used to season (dry) the wood has a huge impact. The wood MUST be dried before being used to make Whiskey barrels – the drying process converts chemical compounds in the wood to more desirable types.

How the wood is dried and for how long has a direct impact on the quality of the spirit.

It's accepted that air seasoning is better than kiln drying (it reduces tannic astringency as well as releases more vanillin), yet, while the barrels used to age wine may be made of staves which have been air dried for as much as 24 months – most bourbon whiskey barrels are made from wood which has been kiln dried in a matter of weeks.

Why? Some distillers think that the method for drying the wood is only important for the first-fill of a spirit aged in a new cask, (e.g., wine or bourbon) and has little or no impact when maturing spirits in previously used casks – and of course, Scotch is aged in previously used casks.

### **The Importance of Heat**

The application of heat is integral to the process of making the barrel – wood fibers behave much like plastic polymers – they want to be straight.

In order to bend the staves, they need to be heated. The straight staves are arranged inside a metal hoop and heated. I have heard that either an open flame or steam may be used. As they are heated they become more pliable and are shaped

- hoops of various diameters are added to each end – six in total



exerted by the staves as they try to straighten themselves. The whiskey barrels are then toasted which caramelizes the wood sugars.

This is where the construction of bourbon whiskey barrels casks and sherry casks diverge.

### **Bourbon Casks**

The Whiskey barrels, once formed, are charred – the inside of the cask is set on fire for a short period of time, which creates a black charred layer.

There are various levels of charring which will have different affects on the spectrum of compounds and flavors the Oak will impart to the maturing spirit: more vanillins, lactones, “toastiness,” spice characters, and tannins.

Charring casks causes further transformation. Char (carbon) removes sulphur compounds and immaturity from new spirit. Bourbon Whiskey barrels are typically charred for 40 seconds to 1 minute, but some distilleries have experimented with charring times of up to 3-4 minutes.

The result of charring is dramatic changes on the surface – for example, wood sugars are caramelized, which will leech into the maturing spirit.

### **Sherry Barrels**

Sherry casks are only toasted and not charred. The casks used to mature Oloroso are the most popular with the Scotch industry.

Sherry casks can be made of American Oak, but this is usually for Fino Sherries and are generally not used by the Scotch industry.

It's accepted that European Oak adds more flavor than American Oak – sherry cask matured whiskies tend to be more full-bodied than bourbon Whiskey barrels matured ones, and this is likely the result of the type of wood, just as much as the type previous liquid occupant.

### **More History**

The wide-spread use of bourbon whiskey barrels is a fairly recent occurrence – a result of the difficulty in sourcing sherry casks during the Spanish civil war in the late 1930's.

Currently anywhere from 300,000 – 400,000 bourbon casks are acquired for use in the maturation of Scotch whisky – in contrast to only about 18,000 sherry casks.

Contrary to popular belief, very few whiskies are aged exclusively in bourbon barrels – most ex-bourbon aged malts are vatted with a (varying) percentage of whiskey which was aged in ex-sherry barrels.

Laphroaig, Glemorangie 10, Ardbeg 10, Glenlivet 12, are among those few “pure” ex-bourbon matured whiskies.