

Midlands Craft Brewers November 2013, Nuneaton

Presentation notes: Wood ageing for home brewers

First, a caveat. I am not going to sell myself as an expert on this subject. I have built up a little experience over the last twelve months through brewing my own barrel-aged beer, and that was preceded by a fair bit of research that forms the basis of what I will describe here. I've also now backed that up with a little additional research to fill in a few gaps. I can't guarantee that I've covered everything, or that you won't have experiences (past or future) that differ from mine. But hopefully this is enough to at least allow you to back it up with your own research, if you fancy trying out wood ageing for yourself.

I've illustrated my presentation with samples of commercial wood-aged beers to try and give a hint of what is available. Unfortunately they'll have to be small samples as conditioning time and cost of barrels tend to add to the price of beers! Plus as we'll see later barrel-ageing tends to better suit stronger beers so maybe small samples are the best option. There'll also be a couple of samples demonstrating a beer I've brewed myself – with a hope of showing the difference between ageing in wood and not.

So, let's get started. As we no doubt all know, for centuries and in fact right up until at least the 1960s, wood has been the material from which beer casks have predominantly been made - metal casks are a relatively modern development. So, contact with wood can be considered quite a traditional aspect of the whole conditioning process and as a result a certain degree of wood character could be considered quite authentic.



Wine and spirits such as whisky and brandy are traditionally aged in wooden barrels too. During this process (which may take months or years depending on the product) the wood both imparts flavours to and absorbs flavours from the product contained within the barrel, and this can be of great benefit for a second-hand user, for two key reasons. The initial product will extract a good portion of the “raw” wood flavour which can be quite harsh, thereby softening the wood character on second and subsequent uses. The flavours absorbed from the initial product will also seep back out on subsequent use providing

contributions that can add interesting additional character. It isn't unusual for modern breweries to take advantage of this to age beers in wooden barrels that can provide flavours of wine, port, sherry, brandy, whisky and more as well as the flavour of the wood itself.

This obviously provides a benefit to a commercial brewer, but there is generally one significant factor here that limits the opportunity for the home brewer – volume. A whisky barrel is typically around 55 gallons, which is about 250 litres, and even larger barrels are also available. For many home brewers this



could take ten brews to fill – I’m aware of brewing groups that have collectively filled one with each member brewing a portion of the total, but for individual home brewers it really isn’t an option. And that’s before the logistics of getting hold of, and storing, such a large item.

But all of that doesn’t mean that wood ageing is completely ruled out for us – we just have to look for a different solution.

If what you are looking for is the wood character, a fairly simple method is to use wood chippings. These can be added directly to a beer, or soaked and the resulting liquid added. There are plenty of advantages in taking this approach – convenience and cost being two key ones, as relatively small quantities can be purchased quite cost effectively. A further benefit is variety – a number of different types of wood can be easily purchased, and the different flavours of each will add different qualities to the beer.

Extracting wood character takes time, so if you’re going to add them directly to the beer it is probably going to be during, or after, fermentation. That raises the issue of sanitation. The nature of wood is that it is full of nooks and crannies, and part of the character of reusing wooden barrels is that the wood harbours more organisms than would normally be desirable even after a good clean, so if you don’t want to introduce anything untoward sanitisation is definitely a concern. With wood chips there are two main ways to do this – boiling and baking. Each method will have an impact on the flavours that the wood will give up – boiling will result in a softer character, whereas baking will naturally cause an element of charring that will pass onto the beer. Neither is particularly better than the other – it all depends on what flavours you’re trying to obtain.

The wood chippings approach isn’t limited to home brewers though – our first commercial beer sample has been aged on oak chips to try and create an authentic idea of what flavours a traditional IPA might have picked up from the wooden barrels it was exported in. This beer is The King’s Shipment, an IPA from Compass brewery in Oxfordshire. The wood character should be quite subtle, introducing hints of oak and vanilla.



If you want to use wood chippings yourself then your best bet is to look for barbecue supplies. Alternatively, a similar approach is to use a plank of wood, rather than wood chippings – to all intents and purposes the technique is the same though it might be easiest to sanitise a plank in the wort towards the end of the boil because of the size! A toasted effect can also be achieved by charring the wood with a flame.

Wood chippings are definitely convenient and cost-effective (the ones I’ve obtained came from a barbecue supplier on eBay, and cost £3.69 for 450g plus delivery costs) but there are other ways to wood-age beers. As identified previously used barrels are generally too large to be of practical use at home, but smaller versions can be obtained. There are two choices – new, and used. To be fair, small used barrels are hard to come by, as they are too small for most commercial uses. There are a handful of breweries that still use a small number of wooden firkins and / or pins, with

Theakstons and Wadsworth both still employing a cooper to make a limited number. Getting hold of these second-hand is more difficult and they are costly new if you can get them at all. Various used casks appear on eBay from time to time but you need to be very cautious about what you are getting here – once a wooden cask has dried out it is likely to warp and the smallest of leaks can render it useless. You only have to look at the price of second-hand barrels converted to planters down at your local garden centre to realise that you're unlikely to pick one of these up for pennies, and it will be a costly discovery if you find you've bought a leaky one.



Onto the second commercial sample – Modus Operandi by Wild Beer. This is an old English ale that has been aged in oak barrels with wild yeast (*Brettanomyces*) for 90 days or more. As well as the wood flavours the Brett makes its own contribution.

Recently there were a number of used 50l casks listed on eBay which had been used for red wine, so it isn't impossible to find something second-hand from a reasonable-looking source, but this isn't common.

So, the alternative to buying a second-hand cask is to buy new. And actually this is pretty easy. A trawl through eBay brings up loads of new oak casks, but these can be pretty small (around 5 litres) and generally cost upwards of £50 – pretty much the same price as a 55 gallon ex-whisky barrel albeit without the same logistics problems! They are much more decorative than practical though, due to the low capacity, so were quickly ruled out when I was searching for a new wooden cask for a beer I wanted to age in this way. Fortunately there are other options, but you have to look at sources that may not seem obvious. Remember the reference to the garden centre? Well that's where the clue lies. I discovered a site that sold barrels and barrel-based products for use in the garden such as water features, tables, planters and so on. But they also sold barrels for holding liquids. They are advertised initially as wine barrels, then as you delve deeper as cider casks, so they really don't necessarily catch the beer brewer's eye at first, but once you've found them there are a few to choose from. There are three sizes – 30l, 50l and 100l, and there was a choice of oak or chestnut, plus another variant (in the same three sizes) that was described as Tasmanian Oak.

So, much as with the wood chippings, there's an all important flavour decision. The choice is a little more limited, admittedly. And got even easier once I investigated Tasmanian Oak – actually not oak at all, but a type of eucalyptus. And the reports I managed to find suggested that the flavour it would impart would be a lot stronger and harsher than oak. So the options became oak or chestnut. Oak would surely be the instinctive choice because it is the traditional material so, presumably, better for replicating the process at home. But there are two factors that come into play here – newness, and a bit of maths. As mentioned earlier most barrel-ageing uses second-hand casks and the previous contents have already removed a portion of the wood character. New oak will give a much more intense flavour. Secondly the volume of

the cask is about 1/8 that of the typical whisky barrel. I'll not go into the actual maths but the surface area in contact with the wood is not reduced by the same proportion. As the cask size gets smaller an increasing proportion of the beer is in contact with wood so the extraction of flavour per unit of volume is greater, requiring a shorter contact time (which may not be suitable if you are seeking to develop other flavours such as character from an inoculation of Brett). With this in mind, I decided to go with chestnut as my research identified this would impart a similar sort of flavour to oak, but more mild. This also had the side benefit of being a few pounds cheaper, but that wasn't a factor in my decision. And what of the cost? Well around the £60 mark for chestnut, nearer £70 for oak, for a 30l barrel. Postage was an extra £6-7 because I was only buying the one – free delivery kicks in above £99.



Time for another tasting. This time we're going darker still, with an Imperial Stout from Bristol Beer Factory. This one has been aged for about 4 months in bourbon barrels, and is quite a hefty beast at 10.5%!

This brings me onto the last main area of consideration. What beer do you age? Well, firstly there are no hard and fast rules. But there are factors you might want to take into account. Firstly, other than wood the main ingredient when ageing a beer is time. If the beer in question isn't going to stand up to an extended period of time conditioning then you might need to reconsider. This is especially so for wooden casks – wood chippings can be treated more like dry hopping, as is the case for the King's Shipment we tasted earlier. But even so, you need to be sure that the beer is robust enough. With a wooden cask you can be pretty certain of some oxygen mixing in so you have to choose your beer even more carefully to make sure that isn't going to be a problem. It isn't a coincidence that commercial barrel-aged beers tend to be at the stronger end of the scale.

Secondly, you want the flavours from the wood to contribute to the finished beer. So it helps to think about the flavour profile of the beer you're ageing, and what the wood might add. To be fair though this is probably a case of some trial and error, or at least more extensive sampling of commercial examples – if you can taste wood-aged and “straight” versions of the same beer even better. In my case I was happy just to experiment and see what the results were like, but I deliberately aimed for a fairly strong beer that would be robust enough to last several months. I was also looking to add extra Brett character so once filled the cask had some dregs from a bottle of Orval added.

Perhaps the last main consideration is your own patience. If you can't wait potentially many months to get your hands on the beer don't expect to develop masses of wood character, and again consider a “dry hopping” approach with wood chippings rather than the longer term investment, of time as well as money, in a wooden cask. On that note, let's move onto the final two samples – an example of just how much patience might be required.

I brewed this back in autumn 2012 – almost a year ago now – with two friends. We wanted a strong, dark, fruity saison – not strictly to style, but then lengthy barrel-

ageing isn't exactly normal for a saison either. The malt base was primarily pilsner malt, with spelt and crystal wheat malts plus a little carafa special III to get extra



colour without too much roastiness. It was then hopped with Bramling Cross, which it was hoped would compliment an addition of blackberries after primary fermentation.

Once fermented out (using the WLP565 saison yeast) we had a beer of around 6.2%. Most of this went into the wooden cask, along with the Orval dregs. A little was kept back in a sealed bottle for topping-up – more of that in a moment. The remainder was bottled with some champagne yeast added in order to build up good carbonation in the bottle. So the first of the two

samples here has been in the bottle for approaching 11 months, but hasn't spent any of that time in contact with the wood.

Over time a proportion of the liquid in the cask evaporates away – whisky producers know this as the “angel's share” – hence a little wort was kept back and added in a few months later. Samples were taken about every three months, and after nearly 9 months it was decided it was ready to bottle. It was then decanted into a bottling bucket with champagne yeast and some honey for priming, and then bottled. That was almost three months ago now and you'll notice that it hasn't yet built up the same levels of condition in the bottle that the un-wooded version has. It's going to need at least six more months, maybe more, to get to that stage. But I think you can still taste the differences the combination of wood and Brett have made.

While we finish off the samples, a few words on caring for a wooden cask. When it first arrives it can't simply be filled with beer without risk of a leak – even for a new cask. It is important to fill it up with water and let it soak for a few days. This allows the wood to swell up and seal. When you empty it you can taste the oakiness in the water even just from those few days of exposure. Sanitisation is a different matter – you have to bear in mind that wood will harbour all sorts of things, but that also put me off using the typical cleaning products as I was more concerned about removing all traces of them. I just gave it a swill with very hot water and accepted that part of using a wooden cask is to benefit flavour-wise from whatever the wood actually harbours. After that, and following filling, the key concern was then just making sure it didn't freeze out in the garage over the winter, which was achieved during some pretty low temperatures with just an old sleeping bag wrapped around it.

Other considerations – well, one thing I chose to do was not to fit a tap. Obviously that means that the contents have to be siphoned out, but it avoids a potential leak point and an extra potential source of infection. What I didn't do was put in a sample hole either – my understanding is that a small hole high up in the barrel end, simply sealed with a nail, is often used to allow small samples to be extracted. I'd consider that in the future, as the alternative of opening the top bung and taking a sample is not ideal. Also, I used a cork bung but it may be worth paying the extra for rubber or silicone – the cork is quite difficult to remove once it has been wedged firmly in. I'll certainly be looking to get hold of a silicone one in the future to compare.

Would I recommend the whole process to anyone else? Yes, though it maybe isn't for everyone – it takes patience and an element of faith, but it has been an interesting experience.

Will I do it again? Definitely. The next plan is to refill with a big imperial stout which will hopefully pick up flavours that have seeped into the wood from the saison. That will then have probably a full year to develop in the cask. Another option for the future is to tip a bottle of port in until ready to reuse so that also adds to the flavours the next beer will pick up.

Thanks for listening!

Some useful links:

My source of barrels: www.oak-barrels.com

My source of wood chippings: <http://www.ebay.co.uk/usr/paulusone1>

Breweries still making wooden casks:

Theakston <http://www.theakstons.co.uk/Cooperage>

Wadworth <http://www.barrelsrus.co.uk/index.html>

The tasting samples:

Compass – The King's Shipment <http://compassbrewery.com/beers/kings-shipment>

Wild Beer – Modus Operandi <http://wildbeerco.com/beers/modus-operandi>

Bristol Beer Factory – Imperial Stout (Bourbon Barrel Aged)

<http://www.bristolbeerfactory.co.uk/product.php?product=12%20STOUTS>