

BREWING WITH BARRELS

SOMETHING OLD IS NEW AGAIN

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Think back to the first time you sipped a bourbon-barrel aged beer. You tasted flavors of oak, vanilla, and maybe a boozy hint of bourbon. These flavors might have been a revelation, like a beam of light breaking through the clouds. For the last 10 to 15 years, the popularity of using barrels to age stronger, bolder beers has increased. But using wood to store beer is far from a modern invention and is, in fact, quite old. Whether used traditionally, as in the case of sour beer makers, or in a modern twist, there is a lot to learn about putting beer into wood.

THE OLDEN DAYS

Ancient Egyptians used clay pots for their primitive homebrewing. Later, Western Europeans used wood for mashing wort and storing beer, but they favored copper kettles for boiling. In the late 1700s and early 1800s, advances in iron making and other technologies brought about by the Industrial Revolution gave brewers other materials to use when making beer. Surely cast-iron pots were a part of many historic breweries. Eventually wood, iron, and copper became scarce in the brewery as stainless steel became the most popular material to mash, boil, ferment, and store beer.

KNOW YOUR BARREL

The top and bottom of the barrel are called heads, and the staves are the long, thin, curved pieces connecting them. The metal pieces wrapped around the staves are called hoops. Joints to connect the staves have to be carefully created. A new barrel will probably leak when first filled with liquid. Liquid causes the staves to swell, and then the barrel becomes watertight. The bulge in the middle is called the bilge. In the middle of the bilge is a bung hole, which can be plugged with a bung.

GET WOOD

Most barrels used in brewing are made from oak, but the wood can be either French, American (the two most common sources), Austrian, or German. Using barrels to impart a unique character to beer is a modern invention. As mentioned earlier, using wood used to be a matter of necessity; it was the most easily available material that worked. Also, barrels used to be lined with different materials to prevent the beer from absorbing flavors from the wood. It is no longer necessary to use the challenging material of wood, so why do modern brewers go old school?

Brewers have many reasons for using barrels to condition beer, but the most obvious is to develop interesting and complex flavors that would not otherwise be present. When using new oak, the beer can become quite oaky in aroma and flavor. This beer might require blending with non-barrel-aged beer. If a barrel has already been used for beer, the oak character imparted will be less. Flavors of vanilla, caramel, even a toasted or roasted character are possible, depending on which barrel is being used.

In addition to new, unused oak barrels, brewers also use barrels that previously held wine or spirits. Some brewers primarily want the flavors of the oak, while others want the flavors of the previous contents of the barrel, such as bourbon, rum, other whiskeys, or wine. Perhaps you have tasted a bourbon-barrel stout with those dark fruit notes, maybe a hint of char, along with a light, sherry-like oxidation. Wine barrels will produce a less intense character than a liquor barrel. But I have had beers aged in red wine barrels, and the flavors of strong, red wine were apparent in the beer.

TIPS FROM THE PROS

Professional brewers use barrels in a variety of ways. Former Stone Brewing Company brewer John Egan said that stronger beers such as Old Guardian Barleywine, Imperial Russian Stout, and Double Bastard Ale do well in bourbon barrels. Those barrels add complex flavors of vanilla, maybe some booziness of bourbon, and even coconut. Brandy barrels have a less intense character, perhaps from being used a few previous times, and they work well with beers like Stone Smoked Porter, Pale Ale, or even Double Bastard Ale.

Other brewers supported the idea of using big beers for wood aging, like barleywines and imperial stouts. Scott Vaccaro of Captain Lawrence Brewing Company suggests aging strong, dark beers to blend with the oaky flavors. Steve Breezley of Avery Brewing Company focuses on beers mostly over 9% alcohol, including a Belgian-style quadrupel, and The Beast, a monstrous, 16% alcohol beer. Both Captain Lawrence and Avery Brewing Companies also use barrels in the production of sour or wild beers.

Barrel aged beer has just begun.

PHOTO: JEFFERY HALVORSON

Rust is NOT an acceptable flavor in beer.

PHOTO: JEFFERY HALVORSON

GOING SOUR

As you can see, a general rule is to age bigger, stronger beers in new oak, or barrels previously filled with spirits. But that is only one way brewers use barrels today. You may have heard that “sour is the new IPA.” That is, sour and wild beers have increased in popularity, and where there is demand, there will be supply. Breweries like Cascade Brewing, New Glarus, Russian River, Lost Abbey, Allagash, Avery, Jolly Pumpkin, Captain Lawrence, New Belgium, and many others have all made a number of wild or sour beers. Some of these breweries even focus on them almost exclusively (Jolly Pumpkin and Cascade Brewing, for example).

Lambic is a sour beer style that was nearly lost, but it is experiencing a rebirth of interest, perhaps due in part to the craft-beer tidal wave. In its purest form, lambic is spontaneously fermented with whatever wild microorganisms are in the air at the time of brewing. The wort cools in shallow pans called koolships, and the wild yeasts and bacteria suspended in the night air are allowed to inoculate the wort. But those are not the only organisms that will ferment the beer.

Whatever wild yeast and bacteria exist in the oak barrels, re-used many times over the years, will also contribute to the final flavor of the beer. These barrels are complex microscopic environments and are much more valuable than the wood with which they are made. Other brewers might not spontaneously ferment their beer but instead use a normal ale or lager yeast strain. The funky part comes when the beer is aged in oak barrels containing souring organisms.



Oak barrels can be over \$1,200 each when new!



PHOTO: JEFFERY HAUOKSON

Perhaps one of the pioneers of the U.S. wild beer brewing renaissance is Vinnie Cilurzo of Russian River Brewing Company. He uses wine barrels exclusively for his wild and sour beer. This not only suits the styles of beer he makes but is also convenient, since he is in the middle of California wine country. Patience and plenty of time are required to allow these beers to develop the flavors that Vinnie wants.

Organisms like *Brettanomyces* (wild yeast), as well as *Lactobacillus* and *Pediococcus* bacteria, take months to work their magic. Wood barrels provide an ideal place for these creatures to live. In fact, it is nearly impossible to remove them once they are entrenched. When the barrel is filled with the next batch of beer, they happily go to work again. Oak barrels also allow the slow permeation of oxygen through the wood, something that *Brettanomyces*, for example, needs to continue its fermentation.

HOMEBREW OPTIONS

Homebrewers can age their beer in barrels, or they can merely imitate the effects. Some homebrew clubs join forces to buy a large, 50-gallon barrel. Different members then contribute a five-gallon batch of the same recipe. Batches are tested before being added to the barrel to make sure they are clean tasting. Even one bad, five-gallon batch could spoil the entire barrel. After an appropriate amount of time, when the beer has enough oak character, it is removed from the barrel. Each brewer takes home their portion to keg or bottle as they see fit. I have tasted a couple batches made this way, and they were wonderful.

Being part of a 50-gallon barrel project is not possible for every homebrewer. There are smaller, five-gallon barrels available for purchase. They are not cheap, but they might be more practical. A cheaper option is to buy oak spirals. These can be made from different kinds of oak, as well as toasted to different levels. Oak spirals can be placed into the aging beer. A brewer can also buy oak chips or oak cubes. Then he can decide how much to add, and how long to leave them. Experimentation and creativity are always part of homebrewing, and homebrewers don't want to miss out on this barrel of fun.



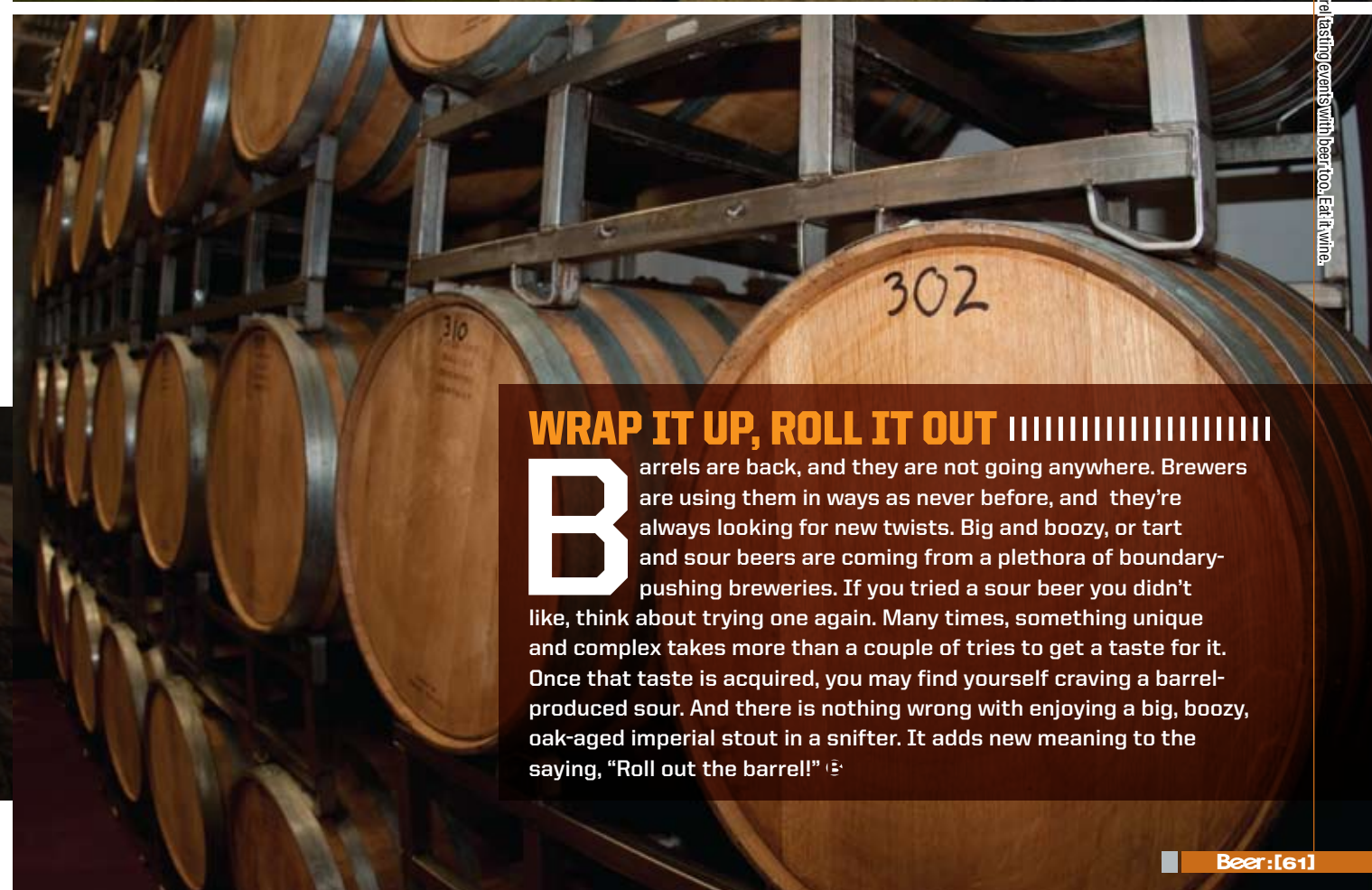
A 50-gallon barrel filled with homebrew.

PRACTICAL CONCERNS

Once a barrel has been used for sour beer, that is basically all it is good for, unless you want to turn it into an impressive flower planter. Other non-sour barrels are sometimes only used once if the level of flavor extraction would be so low that they aren't worth using again.

Some brewers re-use barrels, and others do not. The character you extract from a bourbon barrel the first time will be very different the second time. The bourbon character may diminish, but you might still get vanilla or other tannins from the oak.

Between uses, a barrel must be cleaned. Boiling water can be added and the barrel can be rolled around, but this needs to be done carefully. It needs to be rinsed until the water comes out clear. If the barrel is allowed to dry out, separation between staves can occur. Keeping it wet one way or another is preferable. It can be partially filled, and rolled around, with some kind of alcohol. There are also chemical solutions that can be used to keep the wood wet. Barrel maintenance is complicated, with a great many variables.



Yes there are barrel tasting events with beer too. Eat it with it.

WRAP IT UP, ROLL IT OUT

Barrels are back, and they are not going anywhere. Brewers are using them in ways as never before, and they're always looking for new twists. Big and boozy, or tart and sour beers are coming from a plethora of boundary-pushing breweries. If you tried a sour beer you didn't like, think about trying one again. Many times, something unique and complex takes more than a couple of tries to get a taste for it. Once that taste is acquired, you may find yourself craving a barrel-produced sour. And there is nothing wrong with enjoying a big, boozy, oak-aged imperial stout in a snifter. It adds new meaning to the saying, “Roll out the barrel!”