

Putting the Sparkle into Wine

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For centuries, when people have wanted to celebrate with a glass of wine, just one name has come to mind: Champagne. Today, with sales of Prosecco booming, English sparkling wines regularly winning top awards and fizz from around the world in our supermarkets and wine merchants, is it time to take a fresh look into the world of sparkling wine?



Let's start with the basics: sparkling wines fizz because Carbon Dioxide (CO₂) gas is trapped in the bottle under pressure. Popping the cork releases the pressure and the CO₂ escapes in the form of bubbles.

CO₂ is a natural part of the fermentation process in which yeast reacts with the sugar in ripe grapes to turn it into the alcohol (wine) and CO₂ is a by-product. So, to make a wine sparkling, you just need to capture the CO₂ in a bottle for the customer to enjoy the sight – and taste – of the fizz when they open it.

If only it was that simple!

The Ancient Greeks and Romans both wrote about bubbles in their wines, but they couldn't explain why it happened in some wines and not others. And they had no

idea how to control it. That remained true until, in 1662, an English scientist, Christopher Merret, wrote a paper stating that the presence of sugar in a wine would result in it sparkling – a discovery that pre-dated a similar finding by Dom Perignon, a monk in the Champagne region, by about a decade. But still, neither could explain why nor were they entirely correct.

That didn't matter; the earliest sparkling wines to be made (rather than happening by chance) used this limited knowledge and bottled part-made wine before all the sugar in the grapes had been turned into alcohol. We now know that the fermentation continued in the bottle and the CO₂ produced as a result was trapped there. A few sparkling wines are made in this way even today. Often labelled 'méthode ancestrale' or 'méthode rurale', these are generally much more gently sparkling than most fizz and usually retain quite a bit of sweetness.

But most sparkling wines today are not made like this. For the most basic of fizz, you simply pump some CO₂ into a still wine, as you might if you were making Pepsi or Coca Cola. In France, they disparagingly call this the 'bicycle pump' method. It's fine for fizzy drinks but, for quality sparkling wine, there are 2 better options: one is variously known as the 'Tank', 'Charmat' or 'Cuve Close' Method. The other is the one we now have to call the 'Traditional Method'; it used to be known as the 'Champagne Method' but the growers in Champagne were unhappy when the term was used outside their designated region.

In both methods, you start by fermenting your ripe grapes to make a still wine, usually dry and with a relatively low level of alcohol for a reason that will become clear later. But this uses up the natural sugar in the grapes and you've let the CO₂ produced as a result escape into the atmosphere. Not a good start!

So, to produce the CO₂ you want to capture in the bottle, you have to introduce some more sugar and yeast to create a 2nd fermentation.

For the 'Tank' Method, this takes place in an autoclave – a large pressurised tank. The still wine is tipped in and the mixture of yeast and sugar is added. The yeast acting on the sugar increases the alcohol content slightly (which is why you prefer to start with a relatively low alcohol base wine) but, crucially gives off more CO₂ which is then captured. The – now sparkling - wine is then filtered and bottled – all under pressure to retain the bubbles – and the wine is ready for sale.



If you drink Prosecco, it is almost certain that it will be made in this way.

Wines made using this method tend to be delightfully light, refreshing and fruity and often have an attractive touch of sweetness on the palate.

The 'Traditional' Method is rather different – and more complicated. The still wine (sometimes blended with older 'reserve' wines) is put into the bottle in which the sparkling wine will eventually be sold and the sugar and yeast mixture is added to the bottle, which is then sealed with a crown cap (like the ones used to seal beer bottles). The 2nd fermentation takes place, again increasing the alcohol content of the wine slightly, and the CO₂ is trapped in the bottle which is then left to rest for a period of time.



This can vary from a few months up to several years for some premium bottlings. Vintage Champagne must, by law, spend a minimum of 3 years in this state. But this time is not just to allow the 2nd fermentation to take place – that's all completed within a few months – but it also allows a transformation known as 'yeast autolysis' to take place. This involves the wine reacting with the lees – the spent remains of the yeast cells after they have done their job – to create the additional, savoury, bread or brioche flavours that are a much sought-after feature of the best traditional method sparkling wines – and one of the key taste differences between Tank and Traditional Method fizz.

But, there's a downside to creating the 2nd fermentation in the bottle in which the wine is to be sold: the lees make the wine cloudy and unattractive to look at and so have to be removed before the wine can be sold.



This used to be the job of a 'riddler' – a man (and they were always men) who would gradually, day by day, turn and tilt the bottles until the lees were right up in the neck of the bottle.

It is claimed that an expert riddler could turn more than 30,000 bottles a day – no claims for repetitive strain injuries have ever been recorded! - but today, this method is only used for a very few, mainly larger size bottles – and to please visitors to the cellars. The majority of the job is done nowadays by loading the bottles into a large metal cage called a 'gyropalette' which is then turned by a motor.

However the riddling is done, once the lees are up into the neck of the bottle, they need to be removed. This involves freezing the neck of the bottle and removing the crown cap – another job done mechanically these days, although historically by hand. The pressure of the wine in the bottle pushes out the lees plus a small amount of frozen wine. This lost wine needs to be replaced (the replacement is called the 'dosage') and it is at this stage that the style of the sparkling wine can be adjusted.

The dosage is a mixture of wine and varying amounts of sugar. For absolutely bone-dry wines – an acquired taste - (usually labelled 'Zero dosage' or 'Brut Nature'), less than 3 grams of sugar per litre of wine will be added. Wines labelled 'Brut' will contain between 6 and 15 grams of sugar per litre and will still taste quite dry. For sweeter and dessert styles, look for words like 'demi-sec' or 'doux' on the label – these may have up to 50 grams of sugar per litre or even more added.

Traditional Method sparkling wines are made all over the world, not just in the Champagne region. Elsewhere in France, look for wines labelled 'Crémant' – examples from Alsace, the Loire and Burgundy are all quite widely available. Many Spanish Cavas and wines from Franciacorta in Italy use the same method as do 'Cap Classique' wines from South Africa. And, of course, most English and Welsh sparkling wines, too.



So, Traditional or Tank Method, the next time you're celebrating, don't just think 'Champagne', there are so many more ways of putting the sparkle into your wine.

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