



Beyond Oak: Concrete and Amphora in Modern Winemaking

Description

Among the many vessels used in winemaking, two have always intrigued me – the **ancient amphora** and the **modern concrete tank**. Unlike oak, which contributes its own flavours and aromas, these inert vessels allow the fruit and terroir to take centre stage while offering distinctly different environments for fermentation and maturation. Their growing use by winemakers prompted me to explore what each brings to the finished wine.

I had got an opportunity to see both of these a couple of years back during a visit to **Grover Zampa Vineyards** in Karnataka, where the winery manager explained to me about the role and nuances of these alternative winemaking vessels.

In this post, I shall endeavour to take a closer look at both concrete tanks and amphorae, exploring how these two seemingly similar vessels influence fermentation, maturation and ultimately the style and character of the wine.

Concrete: Where Science Meets Stability

Concrete has become increasingly popular with winemakers who want a neutral vessel that lets the fruit and terroir shine. Its tiny pores allow a slow exchange of oxygen, helping the wine mature gently without the risk of excessive oxidation. Unlike stainless steel, which is completely airtight, concrete allows the wine to breathe naturally while adding no flavours of its own.



A Concrete tank at Grover Zampa Vineyards

Another advantage of concrete is its ability to maintain a fairly stable temperature during fermentation and maturation. Its thick walls reduce sudden temperature changes, helping the wine develop more steadily. This makes concrete a preferred choice for winemakers seeking greater consistency and control.

Some wineries also use **concrete eggs**. This is primarily a concrete tank only but with a unique egg shape. Such design allows the wine and the fine lees (spent yeast cells) to circulate naturally during maturation. This gentle movement helps create wines with greater texture, freshness and a smooth, creamy mouthfeel, without the need for mechanical stirring.

Amphora: Ancient Wisdom in Modern Winemaking

Thousands of years ago, wine was fermented and matured in clay vessels known as amphorae. Their discovery at ancient archaeological sites in countries such as Georgia, which is widely regarded as the cradle of winemaking, offers a fascinating glimpse into one of the world's oldest winemaking traditions. Today, amphorae are making a comeback as more winemakers prefer to adopt the ancient time honoured methods.

Amphorae are essentially clay vessels that allow the wine to breathe gently during maturation. They do not add any flavours of their own, allowing the grape and the vineyard to express themselves naturally. Many winemakers believe this produces wines with purity of fruit, freshness and a distinctive texture. Amphorae may be kept above ground or buried to help maintain a stable temperature during fermentation and maturation.

Concrete vs Amphora

Although these two vessels appear to be quite similar in their actions during winemaking, however there are certain differences in the manner each of these vessels affect the winemaking process, as is brought out in succeeding paragraphs.

Porosity and Oxygen Exchange

Concrete is less porous than amphora, allowing a slower and more controlled exchange of oxygen. Amphorae are generally more porous, encouraging greater oxygen exposure, which can influence the wine's texture, structure and evolution.

Temperature Stability

Concrete has excellent thermal stability. Its thick walls help maintain a more consistent temperature during fermentation and maturation. Amphorae also regulate temperature, particularly when buried, but generally not as effectively as concrete tanks.

Influence on the Wine

Neither vessel contributes flavours of its own. Concrete often produces wines with freshness, purity and a creamy texture, while amphorae are known for wines with vibrant fruit, distinctive texture and a strong sense of terroir.

Natural Movement of the Wine

Concrete eggs promote continuous natural circulation of the wine and fine lees because of their smooth, egg shaped design. Amphorae also encourage some natural movement, although usually to a lesser extent, depending on their shape and design.

Shape Matters

Concrete vessels are commonly made either as eggs or tanks. The egg shape encourages gentle natural convection, helping keep the fine lees in suspension.

Amphorae on other hand are typically taller with a tapering or pointed base. Their shape lends itself to fermentation, settling of solids and ease of handling, with natural convection also being an inherent characteristic.

Author's Note

Both vessels allow winemakers to produce wines that express fruit and terroir without the influence of oak.

To conclude I would say that neither of the two is inherently superior. Each is simply another tool in a skilled winemaker's repertoire. Ultimately, the choice is guided not by fashion, but by the style of wine the producer wishes to create. For us as wine lovers, learning about these vessels certainly helps in appreciating the wine which finally finds its way into the glass.