Concrete Fermenters: *from old school to New World*

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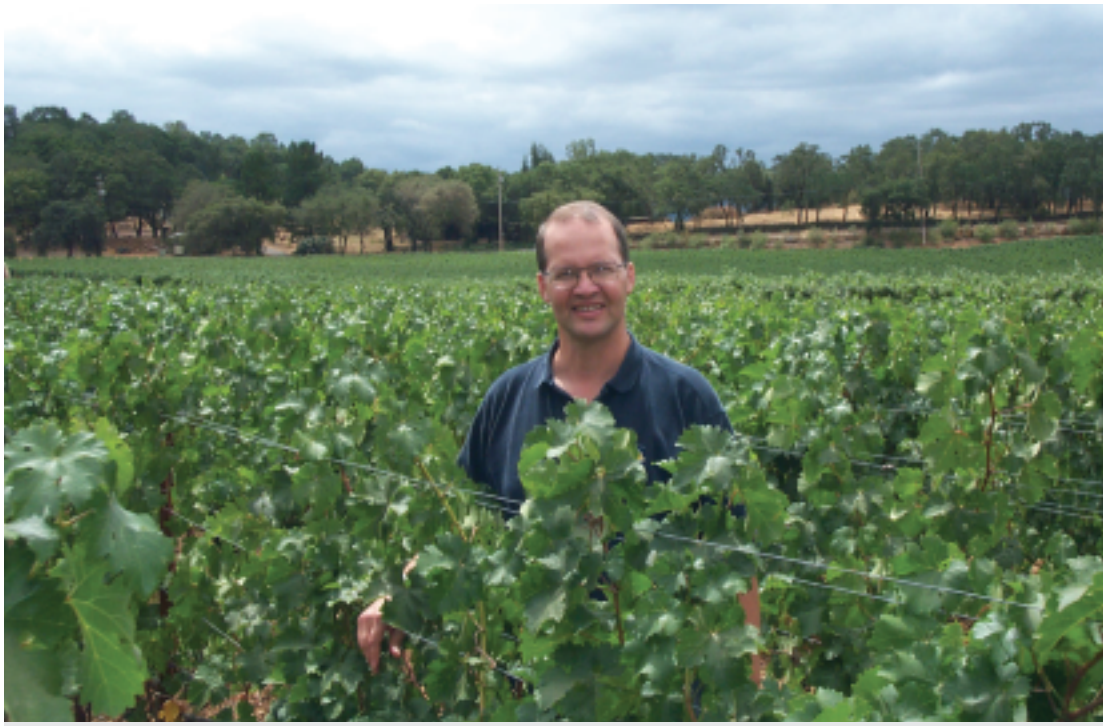

Charles Thomas, winemaker at Napa Valley's Rudd Estate, has been experimenting with a pyramid-shaped, open top concrete fermenter, and finds that, like wood, the material's permeability adds a micro-oxygenative effect.

You see them when you tour older wineries in poorer parts of Spain or Portugal—big cement fermentation tanks, squarish in proportion and often open-topped or covered with a slab of metal. To those of us accustomed to polished stainless steel fermenters, they seem a throwback to the dark ages of winemaking, days when barber-surgeons operated on people with rusty tools and wines still had that elusive sense of place that can only be imbued by distinctly local bacteria and blissful ignorance of the niceties of microbiology and organic chemistry.

Many of the old-school concrete fermenters that are still in use in the United States and abroad have long since been coated in wax or some sort of inert material to keep the wine from direct contact with the concrete, often for reasons known precisely only to the ancestors of the previous winemaker.

In the U.S., those old concrete tanks are seldom seen on winery tours, and when they are, the official line is generally, "They're being phased out." But in similarly tech-savvy Australian wineries, concrete tanks are still the preferred fermentation vessel for production of many of the nation's classic wines: Hardy's Eileen Hardy Shiraz, Tyrell's Vat 9 Shiraz and Torbreck RunRig Shiraz, to name but a few. Penfolds stopped using them for Grange in 1973, but the lined concrete fermenters at Penfolds' Magill Winery are still used for other wines.

By some reports, square, open-top concrete fermenters are still widely used in Burgundy. While they aren't necessarily fashionable throughout Bordeaux, Christian Moueix and his head winemaker Jean-Claude Berrouet exclusively employ modern concrete fermenters coated with an interior layer of cement to make Château Petrus, Château Lafleur-Petrus and Château Trotanoy in Pomerol.

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Delia Viader, who is trying biodynamics in her Napa Valley cellar, uses several egg-shaped concrete fermenters "the most perfect shape in physics."

For Moueix, concrete is more than just a sturdy alternative to stainless steel and oak *foudres*—it's the material of choice. Does concrete have unique properties that oak and stainless steel lack? Some obviously believe that it does, and their success has piqued the curiosity of some American winemakers. Viader and Rudd Estate are two top-shelf Napa wineries that are taking a hard look at concrete fermenters.

Cement Versus Concrete

Cement and concrete are terms which are often used interchangeably, but the two materials aren't identical.

Cement is generally composed of limestone, calcium, silicon, iron and aluminum, plus other trace materials. It is cooked in kilns to form marble-like "clinkers," then ground into a powdery sand, to which gypsum is added. Mix it with a little water and allow it to set, and you have nice hard cement.

Concrete is made from crushed stone, rock and sand held together by cement. The cement is only about 15% of the total mass of concrete. Concrete is stronger and less porous than cement alone.

Advantages Of Concrete Fermenters

Advocates of concrete fermenters generally cite concrete's ability to maintain a steady temperature during fermentation as one if its chief benefits. Even wax- or steel-coated concrete tanks share that temperature-stabilizing quality.

At the Bear Creek Winery facility in Lodi, Calif., where Ironstone and Leaping Horse wines are made,

winemaker Craig Rous likes to use the 24,000 gallon epoxy-lined, closed-top fermenters, supplemented with oak staves, to produce his Chardonnay.

"They're efficient, and not everyone ferments on oak. It gives you more integration into the wine…it softens the wine and adds butter and toffee character," Rous says.

Christian Moueix also praises the temperature stability of concrete fermenters, and believes that they produce clean-tasting wines. "The fermenters maintain a stable temperature throughout fermentation, which is very beneficial during the end part of maceration," says Moueix, whose fermenters range in size from 1,500 to 3,000 liters.

"You have a very clean wine and you do not get the residual musty essence from the barrels or cellar," says Moueix, who also believes that concrete helps to combat reduction. "The disadvantage is that it is very hard to keep it sanitary."

Like wood, concrete is also to some degree permeable. Does that give concrete a micro-oxygenative effect that helps to add texture? "It's definitely permeable, which makes it very similar to wood—micro-ox is the new word for it," says Charles Thomas, winemaker at Napa Valley's Rudd Estate. "Don't be surprised if, after you put the first wine in there, the level goes down six inches."

Rudd Estate and Viader are two notable Napa Valley wineries that have been experimenting with concrete fermenters for the last couple of years. In fact, they split the cost of shipping a container of fermenters from a producer named Nomblot in Burgundy (cuves-a-vin.com). According to Rudd Estate's Thomas, Nomblot was best known for producing concrete mausoleums before it began producing concrete fermenters in quirky sizes and shapes.

Thomas currently has one pyramid-shaped open top 1,050-gallon fermenter. Delia Viader has several 600-gallon egg-shaped fermenters, but says she may move to slightly larger ones with the same shape.

"We're trying biodynamic techniques in the cellar, not only in the vineyard. They're in the shape of an egg, which is the most perfect shape in physics. It creates a vortex, allowing us to garnish the fourth and fifth moon cycles," Viader says.

Viader says that in trials, wood and cement fermenters produced wine with cleaner, more pure fruit flavors than stainless steel fermenters. She agrees with Thomas that the effect is something like that of using an open-topped wood fermenter. She says she doesn't need to modify the temperature during fermentation, and that the resulting wine is "less alcoholic and less tannic. It only showcases the fruit."

Skeptics

Not everyone is so eager to jump on the concrete bandwagon. Bouchaine Winery in Carneros is one of those wineries with old 5-foot deep,

10-by-10 foot concrete fermenters that date back to the 1930s. They're now lined with stainless steel, and the running joke is that they'd make better Jacuzzis than fermenters. They're hard to shovel out, and it's not easy to control the temperature to the degree that winemaker Mike Richmond would like.

Richmond says the dimensions of the fermenters are wrong, and that the ability to precisely control fermentation temperature is key to modern winemaking.

"If you need to raise the temperature, you have to pump the wine through an external heat exchanger…the earth is a big heat sink."

Richmond's chief reservation about concrete fermenters, specifically uncoated concrete ones, is that they are too hard to clean and unhygienic because of their porous character. He's hardly the only winemaker who feels that way—I've heard many echo the sentiment.

"Not a good idea," says Richmond of unlined concrete fermenters. "Calcium can cause a haze in wine, so you don't want the wine in contact with raw concrete. I can't imagine using uncoated concrete in direct contact with wine. The acid in the wine eats away the lime. You should see the ruts in the floor of our winery just from the wine dripping on it."

Even veteran advocates of concrete, like Moueix, acknowledge that concrete fermenters require a little extra attention.

Moueix says that high-pressure washers help to clean out the deep pores of concrete and eliminate a white film that he calls *détraftage*. Delia Viader says she uses a mild peroxide solution to clean her concrete eggs. Of course, the idea of leaving any traces of wine deep in the concrete may be enough to freak out a winemaker who likes the sterile glint of stainless steel.

"When you think about it, it's scary—until you think about barrels," Thomas says, pointing out that barrels have similar issues and aren't exactly easy to clean either.

"I was reading this article about wooden and plastic cutting boards, and apparently one of the important things about wood cutting boards is that they dry out quickly, and that may be better for avoiding microbiological problems," Thomas says. Allowing the concrete to dry thoroughly in a clean environment is the key to maintaining clean flavors.

Thomas says one thing you can't clean out of a concrete fermenter is color. "You can only change colors once, and you can only do it in one direction."■

(San Francisco resident Tim Teichgraeber is the regular wine columnist for the Minneapolis Star Tribune*, a frequent contributor to* The Wave Magazine*, and books the remainder of his schedule as an entertainment lawyer for the likes of Dillinger Four and Har Mar Superstar. Contact him through edit@winesandvines.com.)*