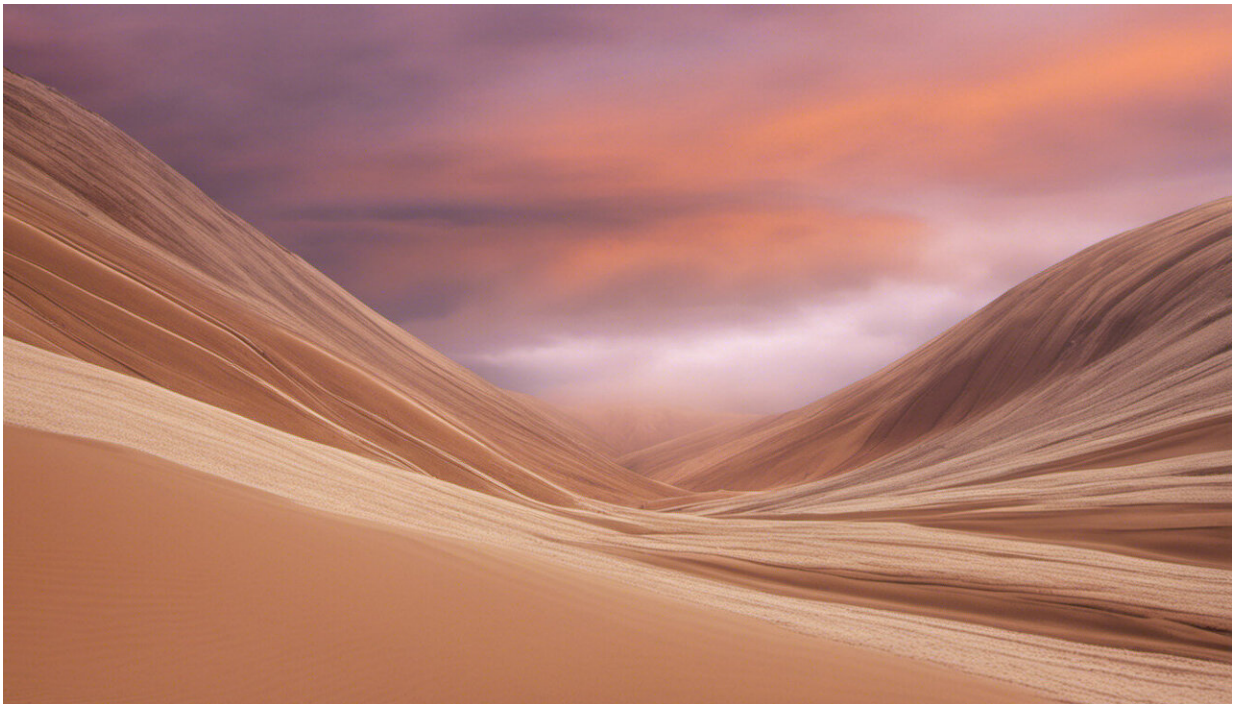


Now wine lovers need to know about geology – or do they?

June 26 2018, by Alex Maltman



Credit: AI-generated image ([disclaimer](#))

"Soil, not grapes, is the latest must-know when choosing a wine," Bloomberg has [proclaimed](#). Meanwhile, wine writer Alice Feiring [has published a book](#), which helps drinkers choose their tippale by "looking at the source: the ground in which it grows". And there are now restaurants with wine lists organised not by grape, wine style or country of origin,

but [by vineyard geology](#).

The idea that a [vineyard](#)'s ground is important for [wine](#) took hold in the Middle Ages when, [legend has it](#), Burgundian monks tasted the soils to find which would give the best tasting wine. After all, the vines were obviously taking up water from the soil and so with it – presumably – everything else that they needed to grow.

But, as I discuss [in my new book](#), the enthusiasm for the pre-eminence of geology is something new. Science long ago discovered photosynthesis, and showed that grapevines are made not of soil but, in a way, of sunshine, air and water. Essentially, grapevines use sunlight to extract carbon dioxide from the air and combine it with water from the ground to make all the various carbohydrate compounds that make the vine. Flavour precursors then develop in the ripening grapes and fermentation converts them into the hundreds of aromatic compounds that determine what a wine tastes like.

On the other hand, none of the kinds of assertions mentioned above indicate how it is that a particular rock brings something to the wine in your glass, and our present scientific understanding makes it difficult to see how this might happen. The fact is that the claims are largely based on anecdote: the scientific justification is slender.

That's not to say the ground isn't relevant. It governs how roots obtain water, in a pattern that is pivotal to how grapes swell and ripen. We know of 14 elements that are essential for the vine to grow, and almost all of them originate in the ground. Some may make it through to the finished wine, in minuscule amounts that can't be *tasted*, though in some cases they can *influence* how [we perceive flavours](#).

But there are other factors at play, that are invisible and hence overlooked. Take for example the land at the Fault Line vineyard at

Abacela, in the Umpqua Valley, Oregon, which shows marked variations in soil types over small areas, and corresponding changes in the wines that were assumed to reflect these geological variations. However, in 2011, the owners started to collect data from 23 sites, every 15 minutes for five years. The [results showed](#) marked spatial variations in the intensity of solar radiation and that temperatures during the ripening period varied by nearly 5°C – all within this single vineyard. In fact, differences in the soil weren't high on the list of factors that influenced grape ripening.

There has been excitement [in scientific circles](#) in recent years about the possible importance of microbiology in the vineyard, because new technologies have revealed distinct fungal and bacterial communities [at different sites](#). What effect this has for wine taste is at present unclear, but the kingdom of fungi includes organisms like the mould *Botrytis* that is responsible for the [famous noble rot infection](#) (which turns grapes into partial raisins) of sweet wines like Sauternes. And yeasts too – both those that guide alcoholic fermentation and those like [Brettanomyces](#) that can affect the [flavour](#) of wine. But again, perhaps because all this is effectively invisible and it's all technical stuff, such things are avoided in most wine writings.

Vineyard soil, on the other hand, is right there, palpable and familiar. But the truth is that most vineyards are routinely gouged, fertilised and irrigated. So with this amount of artificial manipulation is this new preoccupation with the natural geology justified?

Of course, it is perfectly possible that science is missing something, and that with continuing research we will learn of some new phenomenon. But with our present scientific understanding of grapevine physiology, it doesn't seem enough just to make grand assertions without offering some basis. Saying, for instance, that an [Austrian Reisling wine](#) has "complexity because of the slaty para-gneiss, amphibolite and mica

soils" may sound impressive, but surely some indication is needed on how this works?

It is however, likely that such pronouncements will continue, maybe even expand. People like the idea of a direct link between the wine in their glass and a particular vineyard [soil](#), especially if it's clothed with fine sounding terms. It sounds romantic, it makes readable journalism – and it's good for marketing. And, apparently, that trumps the science.

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