Abstract

From Ahr to Otago
Pinot Noir from Schist and Slate on the edges of wine growing

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Introduction

On the climatic edges of wine growing Pinot Noir flourishes on metamorphic rocks. The Ahr in Germany is the wine growing North Pole, Central Otago in New Zealand its southern antipode. The bedrock of the Ahr is slate, the bedrock of Central Otago schist. The objective of this thesis is to explore what makes Pinot Noir from the Ahr Valley and Central Otago special and how climate and soil contribute to this.

Pinot Noir

Pinot Noir is the black cool climate grape variety *prima facie*. With an average growing season temperature of 15-16° C and 1370 hours of sunshine the Ahr is truly a cool climate. Central Otago is with 16 to 18° C and 2000 hours significantly warmer, but is still cool due to its short growing season and cold nights. The Ahr as well as Central Otago are rather dry, but the Ahr is wetter than Central Otago. 662 mm versus 501 mm (Cromwell) per year. Irrigation is common in Central Otago.

Pinot Noir is 47 clones. Over the years wine producers and nurseries developed clones with each a different focus. Originating from France *Pinot Droit* clones are the productive work horses and *Pinot Fin* clones are the high quality ones. *Pinot Precose* is the early ripening clone. Outside of France the stations of UC Davis, Geisenheim and Wädeswill developed their own clones.

In the Ahr *Winzer* used to plant productive Geisenheim clones, but since the 1980s they are more and more planting high quality clones from France (Dijon 115) and the better Giesenheim clones (Kastenholz). *Frühburgunder* is the Ahr's Pinot Precoce, doing well in this very cool climate.

In the 1980s Central Otago wine producers started with Wädeswill 10/5, one of the first clones to come through the New Zealand quarantine. Today, wine producers have more to choose. High quality vineyards are planted with a mix of clones. Cool climate clones UCD 6 and Dijon 115 are popular.

Slate and schist

Soil feeds the vines, but also impacts on the climate in the vineyard and water distribution. When creating *Les Clos* the Burgundian monks knew it already: Pinot Noir is soil sensitive. It needs a poor, good draining soil. Each vineyard gives another Pinot. Slate in the Ahr and schist in Central Otago are dark soils, absorbing and retaining heat. Foliation (fractures)

makes that slate and schist are very good draining. Other than limestone, slate and schist do not hold water. Slate and schist soils with a thin topsoil are very dry soils. The fractures allow the vine roots to penetrate deeply to find nutrients and deep pockets of water.

The western part of the Ahr is dominated by steep slate soils with almost no top soil. These *Schiefer* vineyards are poor and dry. The east part is flatter and the bedrock is covered by loes loam, richer and more water holding.

In Central Otago the schist bedrock is covered by alluvial material in the valley. Uphill, soils become thinner. Viticulture started in the valleys and is now also exploring the slopes.

The wines

In general, the wines of the Ahr are typical cool climate wines: red fruit, high acid, medium alcohol and a light body. The choice of clones influences the wine: *Frühburgunder* is soft and aromatic, mainstream Geisenheim clones show *Sauerkirsche* and Dijon, Kastenholz and the best Geisenheim clones give red and black fruit and spicy aromas.

Soil matters in the Ahr. Wines from *Schiefer* (slate) are significantly more elegant than wines from loess loam. *Schiefer* wines have aromas and flavors of raspberry, red cherry and pepper. Loess loam wines have aromas and flavors of strawberry, black cherry and gloves. *Schiefer* wines are higher in acid. The loess loam wines have more alcohol and more body.

In general, the wines of Central Otago are characterized by their bright fruit aromas and flavours of black cherries, medium acidity, high alcohol, soft tannins and a medium body. Higher temperatures and more sunshine make that these wines are riper. Also here the choice of clone influences the wine. Widely planted Wädeswill 10/5 gives black fruit aromas and flavours, UCD 5 and 6 bramble and plum. The best wines come from vineyard planted with a variety of clones, including Dijon clones.

The most elegant wines in Central Otago come from the coolest vineyards in Gibbston and Alexandra, with aromas of violet, blueberry and red cherry. The wines from warmer Cromwell are richer, with more black fruit aromas and flavour and more alcohol.

Soil does not so much seem to matter in Central Otago. There is no remarkable difference between Pinot Noir from poor schisty and from clay rich soils. It is likely that irrigation fades out the differences in water holding and distribution between different soils.

A comparative approach of regions and soils turns out to be useful. Central Otago Pinot Noir helps to understand Ahr Spätburgunder (and vice versa). Limestone and granite help to understand slate and schist (and vice versa). These comparative perspectives are worth to be explored more deeply. There are many more wines and soil variations to assess . This thesis is just a start.

From Ahr to Otago. Pinot Noir on the edge.