To sense terroir, I would go to Alsace, where I would sip wine and listen attentively to the local winemakers.

The essence of terroir lies in the quiet, dark world beneath the topsoil. Though topsoil can be altered through digging, compaction, additions, and erosion, the subsoil, with its indelible influence on wine, remains the same. Other factors affecting terroir are also variable. We have come to accept that climate can change within our lifetime—grapes now ripen for harvest two to three weeks earlier than they did thirty years ago. And winemakers themselves change. Generations of winemakers come and go, as do styles of making wine and the wines preferred by consumers. Yet, through all this, the subsoil remains the same.

We can determine terroir through the locus of the vineyard, by studying the vine varieties that grow in that place and the wines that are made from them, as well as through our perceptions and understanding of the flavor of wine—its smell and expression on the palate. Yet even when it is possible to comprehend the expression of terroir in wine, it is difficult to experience its essence. Just as a nuclear chain reaction needs to be sustained by a discrete mass of fissionable material, so do terroirists need a place, a wine, and a culture that can provide them with sufficient and sustainable evidence of terroir.

Before history existed, in the area between what is now known as the Vosges mountain range of northeastern France and the Black Forest of southwestern Germany, a mountain range collapsed. Through the resulting gap, the Rhine River found its way north from its source in the Swiss Alps to its destination, the North Sea. As it flowed past the Vosges, it dropped sediments, which formed a fertile plain. A narrow slice of the western edge of that plain and the adjoining foothills of the Vosges comprise the Alsace wine region. At the interface of these geologic structures, numerous faults have opened, exposing strata of subsoils that make up a complex quilt of as many as eight hundred geologically different patches of terroirs. This is the most complex geology of any viticultural region on earth. Wines made in Alsace show their terroir more clearly than do wines made anywhere else.

Alsace vinification, a blend of the artisanal and intuitive methods typical of eastern France and the controlled and pristinely clean ones typical of Germany, creates wines that show every possible nuance of flavor. Alsace producers, to a degree unmatched by those of any other wine region, have embraced sustainable, organic, and biodynamic viticultural methods, which encourage either reduction or a total elimination of synthetic fertilizers. As a consequence, the roots of the grapevines must bore extremely deep into the subsoil in search of available water and nutrients. These viticultural practices also limit or forbid entirely the use of pesticides and herbicides, so the vines take in very few, if any, synthetic compounds. Biodiversity—the complex of microorganisms, insects, bacteria, fungi, and the like—is restored to whatever degree possible or practical within the air, soil, and subsoil. I say to the “degree possible or practical” because a vineyard, by definition, is a monoculture. A monocultural crop, in name and effect, is antagonistic to biodiversity, however necessary it may be to streamline costs, reduce labor, and increase grape yield or quality.

Central to the approach of winemakers in Alsace is the practice of restoring life to the soil and subsoil and stabilizing

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Discovering Terroir in the Wines of Alsace
their condition so that healthy vines can grow. During the 1960s, 1970s, and 1980s, industrial chemical companies, backed by policies of the European Economic Community, advocated heavy use of herbicides and pesticides. By the 1990s herbicide and pesticide use had decimated insect populations and left the soil and subsoil devoid of microorganisms. Of particular importance to terroirs are the fungi that adhere to vine rootlets. These fungi, by breaking down rocks and minerals like limestone, quartz, and mica into their component parts of calcium, iron, and phosphorus, create a cocktail of water and minerals that plant rootlets can absorb.

There are three restorative vineyard strategies. The sustainable approach, what the French call lutte raisonnée (the reasoned battle), advocates the use of synthetic additions only where, when, and at the minimum concentrations necessary. Organic (biologique) methods forbid all synthetic additions, except for copper products such as copper sulfate as protection against fungus. The biodynamic (biodynamique) approach, verging on a philosophy, tries to restore the balance between the cosmos and the earth. Since the 1990s more and more wine producers have discovered that the philosophical but largely unscientific biodynamic practices have been extremely successful in bringing the subsoil back to life and allowing it to maintain a dynamic relationship with the vine.

Alsace, more than any other wine region, has embraced these environment-friendly strategies, and the biodynamic movement is particularly strong there. Eugene Neyer, in 1975, was the first biodynamic wine producer in Alsace; next came Pierre Frick, in 1982. In the late 1980s Marc Kreydenweiss became the beacon that other Alsace winemakers followed, and since the late 1990s the biodynamic movement has spread throughout Alsace. Sustainable, organic, and biodynamic methods are more likely to embed the influence of place in wine. A terroir wine should reflect to the highest degree possible the vine’s underground repast.

Even though Alsace winemakers agree that the terroir expresses itself in their wines, exactly what terroir smells and tastes like in a glass of wine is not so clear. The winemakers of Alsace usually use the word mineralité to indicate the smell and taste of the terroir. Hence, mineralité is a sought-after attribute. But parsing the qualities of a wine gets tricky when discussing the origin of the “petrol” (gasoline) smell.
in Riesling wine. Is this an indication of minerality or is it a flaw in the wine? On a recent trip to Alsace I posed the question. Bernard Schoffit of Domaine Schoffit in Colmar admits that there are two schools of thought: “For some, petrol is the hallmark of a top wine. For others, petrol is the degeneration of Riesling.” He pointed out that deep, cool, heavy soils, such as the clay-marl soil of the grand cru vineyard Rosacker in Ribeauvillé, regularly produce Riesling with a petrol edge. Yet, at the Grand Cru Rangen, where the soils are volcanic, his Rieslings never show petrol. But, Schoffit adds, the harder the Riesling grapes are pressed before fermentation, the more likely they are to give off a petrol smell. Harder pressing extracts more bitterness, tannins, and vegetable protein, all qualities to be avoided in classic Riesling production. Thus petrol could hardly be a sign of terroir. Indeed, Jean-Michel Deiss of Marcel Deiss, one of the most eloquent advocates for terroir wines, asserts that none of his wines displays the petrol smell. Nevertheless, Laurence Faller, winemaker at Domaine Weinbach, is a firm advocate of petrol in Riesling. She believes that as top Rieslings age, they acquire petrol, which for her is the ultimate stage of minerality. Jacques Sipp of Domaine Sipp-Mack stands somewhere in between Schoffit and Faller. He admits to a love-hate relationship with the petrol smell, saying that it tickles the nose. But so would an excess of sulfites!

One person who should know about the relation of petrol to terroir is Jean Schaetzel. Since 1978 he has taught Alsace winemakers how to taste wine at the Centre de Formation Professionnel et de Promotion Agricole in Rouffach. He also trains members of the official appellation tasting committees. Schaetzel wears three hats: professor, enologist, and biodynamic wine producer in Ammerschwihr (Domaine Martin Schaetzel). This involvement in three sectors of the wine industry increases his credibility and his reach; of the seventeen Alsace wine producers I visited in November 2007, he had taught nine. Schaetzel attributes the petrol smell to reduction, a condition in which sulfur-containing aromatic compounds express smells that resemble flint, a struck match, rotten egg, chives, garlic, rotting onion, boiled cauliflower, wet wool, gasoline, and other pungent smells. The petrol smell, he insists, has nothing to do with minerality. To understand minerality, one has to start with the vine rootlets that absorb minerals from the surrounding subsoil. These combine with wine acids to form mineral salts, such as calcium tartrate.

Mineral salts have a subtle, but perceptible, impact in the mouth. Initially they increase salivation, giving wine more sapidity. They extend the finish or aftertaste, where a faint salinity can be sensed. The ground under some vineyards has high concentrations of certain mineral components. Rangen, for example, is particularly rich in phosphorus. If one could identify phosphorus salts in wine, one could pick out Rangen more easily in blind tastings. Schaetzel, however, does not go so far as to say he could distinguish different mineral salts by taste. Francis Burn of Domaine Ernest Burn echoes Schaetzel: “All wines go toward salinity, but not the same salinity.”

Though Schaetzel recognizes that minerality is derivative of subsoil compounds, he does not equate minerality with terroir, believing that minerality is just one expression of the subsoil. Calcareous soils, for example, usually produce wines with finesse, while clay soils produce wines marked by body and fatness. Granite, shale, and marl soils create wines with power. Minerality is primarily experienced in the finish. André Ostertag of Domaine Ostertag, once Schaetzel’s student and now one of Alsace’s most fervent terroirists, explains: “Most people focus on the front taste of a young wine, where the fruit is expressed. Terroir is only perceptible in the back taste, where the fruit fades.”

All the winemakers I interviewed agreed that terroir and, more specifically, minerality become more pronounced with bottle age: “Wines get their identity with age” (Seppi Landmann); “Soil expression comes afterward” (Albert Seltz of Domaine Albert Seltz); and “Limestone and clay soil initially produce fruity wine, but with bottle age the minerality comes out” (Laurence Faller). André Ostertag, Francis Burn, and Rémy Gresser of Domaine Rémy Gresser all agree that with bottle age, sweetness in Gewürztraminer moves toward dryness. As the sweetness recedes, the minerality expresses itself. Olaf Richter, assistant winemaker at Domaine Zind-Humbrecht, told me that “Saltiness [i.e., minerality] emerges after ten years of bottle age. It will dominate, but the wine will still be in balance.” I tasted a 1995 Rangen Clos Saint-Théobald Riesling with its maker, Bernard Schoffit of Domaine Schoffit. Its nose showed the honey and pineapple indicative of botrytis, and its palate, an evident but not cloying sweetness. The finish was a freight train of acidity. Schoffit looked up from his glass. “It will show terroir in ten years.” All the winemakers agreed that Riesling has the most capacity to express terroir.

The intense focus on terroir, however, reveals another controversy in the political subsoil of Alsace. Historically, blends of varieties have always been an important segment of the Alsace wine market. Since the end of World War II, only Alsace has been allowed to pursue varietal labeling in France. This labeling has helped consumers of Alsace wine understand the styles of the wine that they were purchasing.
Regulations first introduced in the 1970s now identify fifty-one sites as grand cru vineyards. Until recently, the grands crus had to be varietal wines composed of only one of the following four varieties: Riesling, Gewürztraminer, Pinot Gris, or Muscat d’Alsace. Over the last few years, though, thanks to Albert Seltz’s advocacy, regulations have changed to allow a Sylvaner varietal designation for the grand cru vineyard of Zotzenberg. In addition, a blend of the four noble varieties with the addition of Sylvaner has been allowed for Grand Cru Altenberg de Bergheim, and the most recent grand cru, Kaefferkopf, can be a blend of the four varieties listed above.

The most visible advocate for grand cru varietal blends is Jean-Michel Deiss, who championed the law that allowed varietal blending for Altenberg de Bergheim. In his lineup of wines he includes a series called Les Vins de Terroir, and he markets premier cru and grand cru wines that do not indicate on the front labels what variety or varieties of grape they contain. In addition, Deiss uses the terminology of premier cru to identify his second-tier terroir wines, even though this terminology has no official meaning. Clearly, he is pushing the limits of Alsace law and recent tradition. His reasoning, though, is simple. If one believes that terroir determines the identity of a particular wine, then varietal identity is only a channel for that identity. If Deiss were to identify the variety on the label, it would undermine the concept of a terroir wine. Whether the wine is a blend of varieties or a single variety is irrelevant.

Other winemakers, such as Laurence Faller, Rémy Gresser, and Étienne Sipp, disagree. Faller feels that only the right variety unlocks the terroir. Just as sommeliers pair wine with cuisine, Alsace winemakers pair varieties with terroirs. Gresser feels that a proliferation of single-vineyard wines without mention of a single varietal will confuse the consumer and disfigure the image of Alsace wine. Sipp told me that because terroirs totally transform the grape varieties, the variety does not obscure the terroir. “For the time being,” he says, “I am happy with varietal wines because consumers understand what they are getting.”

Alsace winemakers generally use seven different grape varieties: Riesling, Gewürztraminer, Pinot Gris, Muscat d’Alsace, Pinot Blanc, Sylvaner, and Pinot Noir. The permutations of seven different grape varieties and eight hundred distinct soil types create a dazzling kaleidoscope of different expressions of terroir. The essence of the terroir is channeled through the soil in the vineyard, the husbandry of the vines, and the hoses, tanks, and casks in the wine cellar. It is then bottled in glass and contained by cork. Eventually that bottle finds its way onto your dinner table and into your glass. The essence finally reaches you. Can you sense it?