Wine Fundamentals Certificate Level 1

International Sommelier Guild Textbook ©

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On Becoming a Sommelier

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Welcome to Wine Fundamentals I and the beginning of a life-long study of wine. By embarking on an educational journey like this one, you are already showing the curiosity it takes to become a successful sommelier.

Traditionally, the word ***sommelier*** meant a wine waiter, or person responsible for the service of alcoholic beverages in a restaurant. In recent years the definition has been extended to include people in all aspects of the hospitality industry who have a deep understanding of wine. A twenty-first century sommelier is expected to be many things all at the same time.

While each sommelier has his or her unique style, there are certain characteristics that all top wine professionals share. Passion, knowledge and humility, for instance, are key characteristics. A sommelier with these attributes is well-positioned to achieve the main objective of service: improving the guest experience.

I've never met a good sommelier who didn't have a lot passion for both wine and fine service. If you are passionate, your enthusiasm will inspire your colleagues and customers. It will also fuel your desire to meet some of the challenges of the profession: attending early-morning tastings, continuing to study after your formal course work is finished, and maintaining a smile on a crazy night at the restaurant.

You already know that broad knowledge about wine and other beverages is necessary to be an effective sommelier. What you will soon realize, however, is that it is impossible to know everything. Fortunately, the study of wine is addictive, and you will want to read and taste all the time to get a real feel for it.

Because it is such a broad subject, many people find wine intimidating. As the specialist, it will be your job to put your customers at ease. This is where humility comes in. In a restaurant or wine store, the sommelier's mission is to help people choose wines that will bring them the most pleasure, not to show them how much he or she knows! In the community at large, the most knowledgeable wine experts are often the most humble.

The modern definition of a sommelier implies certification by a recognized body, like the ISG. Formal training has many benefits, ranging from personal fulfillment to increased career opportunities. You are likely to find that serious wine study will also heighten your drinking pleasure and, indirectly, your quality of life.

Learning in a group helps aspiring sommeliers to understand wine with the help of other passionate people, and provides an unintimidating forum for discussion. In class, you will try wines and learn about regions you might not otherwise have considered. You may not like them all, but you will learn to appreciate them for the role they play in the diverse world of wine. In this way, the study of wine is a cultural adventure, and often inspires students to delve more deeply into specific areas of history, art and language to more fully understand them.

Certification also increases your professional status and income generating possibilities. An employer can look at your level of qualification and instantly get a sense of your knowledge. Also, a commitment to undergo the rigors of formal training and examinations says a lot about your dedication to your profession. Graduates of ISG programs become part of a community of wine lovers. There are many benefits to having friends in wine, including opportunities for travel, tasting and career advancement.

The secret to success as a wine student is easy to describe: eat, drink, and ask plenty of questions. Taste as many different wines, foods and combinations as you can, and think about what works and what doesn't. As often as possible, travel to wine regions and experience first-hand the cultures responsible for the world's unique flavors. When you can't travel, talk to visiting winery representatives and ask them about the trends in their areas. And, finally, come to class prepared with lots of questions for your teacher and classmates. It is the best way to take advantage of your time together.

Throughout the journey, never lose your curiosity, your humility, or your desire to learn. The road to becoming a sommelier is filled with revelation, celebration and, occasionally, frustration. Remember that you will never know everything about wine, but the more you learn the greater your pleasure will be, and the better you'll be able to share your passion with others.

Wine, after all, is a beverage of pleasure. In the pages that follow, therefore, we have tried to maintain a lightness of tone, so as to avoid the collision between the pleasures of wine itself and the occasional pains of reading about it.

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On the History of Wine

The history of wine is an enormously rich subject which could occupy a student for a lifetime. In this brief introduction, we want to give you at least a sense of that richness and hopefully inspire you to delve more deeply into the topic in the future.

Though our focus will be on the movement of grapes and winemaking through the cultures of the Middle East and Europe, you should also be aware that wine has equally intriguing social and spiritual dimensions. To many ancient cultures, wine and its effects were nothing short of miraculous gifts. For this reason, wine insinuates itself into the spiritual systems of the ancients, sometimes through the agricultural gods directly (Dionysus, Bacchus, Christ), sometimes through ideas of spiritual medicine (wine as comfort, courage, liberation), and sometimes through ideas like 'sacred drunkenness.' Wine, some cultures believed, was an instrument which could induce ecstasy and be used to lift the veil separating human beings from the divine.

But wine is also capable of lifting the veil separating one culture from another, one person from another. Trade in wine is one of the things that drew the cultures of Europe and the near east together.

In the Beginning

Wine is a natural product—so natural, in fact, that making it doesn't really require the intervention of human beings. Grapes ripen, berries fall, and yeast invades. The yeast converts the sugar in the ripe fruit to alcohol and various animals arrive to eat the booze-laden berries. It may be that a bird (or some other creature) was the first wine drinker.

No one is entirely sure when human beings began to involve themselves in the animal kingdom's autumn ritual of eating fermented fruit, but archaeologists think that we began our love affair with wine between roughly 7 000-5 000 BCE. These dates correspond to the likely period of the first significant human settlements in areas where grapes are native. During this period, human beings moved away from a nomadic, hunter-gatherer existence and learned to domesticate animals and food crops. Settlement also required that humans learn to preserve the perishable crops they grew in the summer so that they would have a healthy diet over the winter. And this may be the humble origin of wine: it is a preserve, made necessary by the fragility of grapes themselves.

Carbon dating of petrified grape seeds (or pips) suggests that it was likely in Transcaucasia—the area south of the Caucasus Mountains between the Black and Caspian Seas—where the first grape growers and winemakers lived. Today, this area includes parts of the nations of Armenia and Georgia.

The large region which includes the Caucasus and other mountain ranges, such as the Taurus and the Zagros, is important for its geographical relationship with other Middle Eastern cultures which would develop their own winemaking traditions. It was down the rivers, which have their sources in these elevated regions, that these traditions were spread.

One culture which developed an appreciation for wine was that of the Sumerians. Important for their contributions to literature (*The Epic of Gilgamesh*, which introduces the figure of Siduri, wine and

beer maker to the gods, is the first epic tale) they also established trade relationships with other cultures of the Middle East.

Two groups with whom the Sumerians traded were the Egyptians and the Phoenicians. The Egyptians are important contributors to the early history of wine, and the drink became a major part of the culture of the Egyptian elite. They were great record keepers, and recorded vintages, vineyards, even winemaker names on their clay pots, some of which were placed in the tombs of the nobility. The Egyptians were wine drinkers first, but they soon learned to grow grapes in the fertile Nile River delta.

Though the Egyptians were important, it may be that Phoenician culture has had a more lasting influence on the way we approach wine today. The Phoenicians, who were based in what is today Lebanon, were merchant-traders and colonizers and were considered perhaps the finest sea travelers of their age. They actively traded all over the Mediterranean basin and established colonies in north Africa and in southern Europe as far west as the Rock of Gibraltar. In their travels, the Phoenicians established a theme that runs through the history of wine all the way down to the present: where wine drinkers go, the vine goes, too.

On the Greeks and Romans

The various civilizations of ancient Greece were avid traders with Middle Eastern cultures and developed a salad dressing economy based on two primary products—wine and olive oil. Under the spiritual protection of the god Dionysus, Greeks expanded the territory of the vine through colonization, developed wine making and vine growing techniques, and also expanded the audience for wine. To the Greeks, wine was a social beverage which contributed to the health of the individual who consumed it. Witness, for example, the prescriptions of Hippocrates, one of the fathers of medicine, who often suggested wine as a component of medical treatment. Beyond the antiseptic effect provided by the alcohol, wine could also comfort the mind and relax the soul.

Like the Phoenicians, the Greeks were avid travelers and colonizers. Their contributions to the spread of the vine were considerable as they brought new grapes and new techniques to southern France, Spain, and, perhaps most importantly, to southern Italy.

The Greeks were particularly impressed with the possibilities for viticulture in southern Italy—so much so that they named the area *Oenotria* or 'wine land.' Wine was not unheard of on the Italian peninsula before the Greek arrival—the Etruscan tribes of central Italy, for example, were already established grape growers—but the Greeks introduced new varieties and much technical improvement.

As Greek culture declined in the area, a new culture, based out of Rome, began to develop and expand around Europe. It is difficult to overstate the importance of the Romans for the development of wine culture in Europe. The Romans produced manuals describing grape growing and winemaking, understood the importance of soil, slope and vineyard aspect, and developed a pan-European wine trade. As the Roman Empire expanded, so did the European vineyard, because wine was understood as an essential part of the daily diet of the Roman citizenry. As rivers were the most effective travel routes in the days before asphalt, it is not surprising that many of the growing regions established by the Romans are located along major river systems. A partial list of today's European regions beyond Italy which owe their development to the Romans would include France's Burgundy,

Bordeaux, Champagne, Alsace, and the Rhône and Loire valleys, Germany's Rheingau, and Austrian regions along the Danube.

On the Middle Ages

The vast and sweeping culture of the Romans began its decline by roughly the fourth century and was in full collapse by the fifth (476 CE is typically offered as the end point for the Roman Empire). In the absence of the Empire, Europe entered its Dark Ages. This historical period represented several hundred years of decline during which disease, foreign invasion (the North African Moors and Saracens), and early death formed the horizon of expectation for most people.

Though we know little of the wine trade during this period, we do know that people continued to make and drink wine, though on a more local level than they had under the protection of the Romans. This period also saw the development of the Christian monastic movement which served as a sort of counterpoint to the dismal state of Europe. The monasteries, which spread throughout Europe after the fall of the Roman Empire, became centers of learning and hospitality and helped to drag Europe out of the Dark Ages and into the Middle Ages.

European monasteries developed their own local economies and supported themselves through a combination of donation and the labor of the monks. In these pre-industrial times, much of this labor was agricultural, so it is not surprising that the monasteries, blessed with wealth, patience, time, and learning, would make significant contributions to grape growing and winemaking. Wine was essential for church rituals, but it was also an important part of the hospitality provided by the monasteries, and an important part of the daily diet of the monks. Wine was, after all, much safer to drink than water.

Two orders which made significant contributions to the maintenance and development of wine culture during this period were the Benedictines and the Cistercians. The Benedictines, a large and powerful order, established monasteries all over Europe, including their most important center at Cluny in the south of France's Burgundy region. Wealthy and highly organized, the Benedictines were avid record keepers who produced important documents on grape growing technique and winemaking. Through donation, they also amassed a collection of some of Europe's finest vineyard sites, many of which are still in operation in France and Germany.

An offshoot of the Benedictines was the Cistercian order, also based in Burgundy. The hard working Cistercians also established many important vineyards. Both the Cistercians and Benedictines chose to enclose their best vineyards with walls to identify the unique characters of the sites and the wines they produced from them. In French, these are known as *clos* or 'enclosures.' Clos de Tart, an important, high quality wine from Burgundy produced within the walled vineyard of the same name, is an example of a Cistercian *clos*.

On Exploration, Disease, and Trade

The monasteries remained an important part of European culture for several hundred years, but European consciousness began to change by the 15th century and an increasingly secular element entered into the wine industry. The changes in consciousness are most evident, perhaps, in the emergence of a desire to explore the world beyond Europe. This curiosity was rewarded with the

Portuguese discovery of the island of Madeira early in the 15th century and later with the discovery of the Americas at century's end.

The opening of the new world brought opportunities for viticulture, and significant wine industries were soon developed around new population centers in North and South America. Monastic vineyards sprang up to satisfy the requirements of the church and traders set up shop in port cities to satisfy European and American demand for foreign products.

The age of exploration did not end, of course, with the discovery and settlement of the Americas by the Portuguese, Spanish, English, and French. Later developments saw the Dutch establish vineyards in the Cape region of South Africa in the 17th century and the English begin to colonize Australia and New Zealand in the late 18th century.

The age of exploration did much to stimulate the intellectual growth of the European people, but all was not sweetness and light, at least in terms of our narrow focus on the wine industry. The industrialization of the 19th century, which gave the world the steam engine, reduced trans-Atlantic travel time from weeks to days. And while this improved the comfort levels of travelers, it also allowed less savory guests to cross the ocean. The latter part of the 19th century proved difficult for European farmers as North American pests and diseases were unwittingly imported to the continent. The problems for the European vineyard began with imported mildews—powdery and downy—which drastically curtailed vineyard yields, and culminated with the arrival of a vine louse then known as *Phylloxera vastatrix*. Infestation with the louse is fatal for European vines and, beginning in the south of France in the 1860s, the louse slowly traveled to every European region. The scale of the devastation is hard to imagine. It is estimated, for example, that there were approximately eleven billion vines in France alone when the louse arrived.

The severe shortage of quality wine that Europe experienced during the latter part of the nineteenth century encouraged various forms of criminality. Fraud and adulteration were rampant and continued even after it was discovered that grafting European bud wood to vine roots from species native to eastern North America provided the needed resistance for the vine to survive.

The effects of the *Phylloxera* devastation were lasting in Europe. Many regions have less land devoted to grapes today than they did before *Phylloxera*. Dominant grape varieties changed in some regions. And some regions abandoned grape growing altogether.

Governments were forced to take action in order to protect their wine industries, prevent fraud, and guarantee the authenticity of the geographical names on their labels. By the 1930s, the French had developed a set of controls surrounding the geographical names on their labels which has become a global standard for the wine industry.

Since the dark days of the *Phylloxera* devastation, much has changed in the wine industry, both in Europe and in the new world. New technology, such as stainless steel, has improved the general standard of winemaking. More accessible global travel has stimulated experimentation among consumers. Even the medical community has stepped in and extolled the health benefits of moderate wine consumption, echoing the ancient Greeks. For wine drinkers, there has never been a more exciting time.

On Grapes in the World

Wine comes from grape juice and grape juice comes from the berries of the grape vine, a perennial plant native to the northern hemisphere. There are many different species of grapes, but we will be concerned with only one: *Vitis vinifera*, 'the wine bearing grape' which is native to the Middle East and Europe between roughly the 30th and 50th parallels.

Today, of course, we find *Vitis vinifera* grapes planted far beyond Europe, and even into the southern hemisphere. A quick glance at a map, however, will confirm that whether in the southern or northern hemisphere, almost all of the growing regions remain between the 30th and 50th parallels. This is because it is within those latitudes that the grape finds the climate most favorable to its existence—the natural balance between warm and cold, sun and rain, wind and stillness.

On Climate

Of all of the environmental factors which contribute to the unique features of a particular wine, none is more important than climate. But what is climate?

In its most basic definition, climate is a series of long term averages. We are all familiar with weather—the particular conditions of a particular day. But climate observes all of those particulars over a long period of time to develop a profile for a particular place based on what is average or typical. A list of the elements under consideration when developing a climate profile includes the following: humidity, temperature, precipitation, wind patterns, hours of sunshine, frost free days, and heat accumulation units. It is not particularly important for the wine lover to understand the specific meaning of all of these terms, but it is important to develop an understanding of the importance of climate to grape growers.

An understanding of their regional climate helps grape growers decide what varieties to plant and, by extension, what styles of wine they might reasonably expect to be able to make. A grower in a region with a short, cool growing season which commonly receives frost quite early in the fall will know not to choose to plant a variety (Grenache, for example) which requires both abundant heat and a long growing season.

Climate experts have helpfully developed names for climates common to large swaths of land with common features, so it is not so very difficult for wine lovers to develop a good sense of the climates of particular regions. Because these are large areas, we use the name 'macroclimate' to describe them. In this course, we will primarily be concerned with only three types of macroclimate: Maritime, Continental, and Mediterranean.

Maritime climates are found in coastal areas close to large, cool bodies of water. They are characterized above all by their mildness and relatively high rainfall. Summers are long and warm, and winters fairly short and cool.

As we move away from these bodies of water and onto large land masses, we enter into **Continental climate** zones. Without the moderating influence of the oceans, these areas typically experience more extreme conditions—four distinct seasons with short, hot summers and long, cold winters.

Though it would seem logical to believe that **Mediterranean climates** would only be found in areas surrounding the warm Mediterranean Sea, we often abandon logic and describe climates as 'Mediterranean' even though they are thousands of miles removed from the actual Mediterranean. Long, warm, and dry summers with short, cool winters characterize this climate.

It is important to understand large climatic areas, but it is also important to understand that certain topographical features—lakes, rivers, elevations—can cause some small areas to act against type. An example: a specific small area located close to the Mediterranean but on a high plateau may experience climatic conditions more similar to the Continental model than the Mediterranean. This is an example of mesoclimate—a small area with a unique climate caused by specific topographical features. There are countless unique mesoclimates located within any given macroclimatic area.

Growers may also monitor the particular conditions surrounding even a single vine, and when they do so, they are observing the smallest of climatic areas: microclimate. This may seem a little precious, but conscientious grape growers regularly monitor individual vines to ensure that their environment is healthy and will contribute to excellent grape quality.

On Soil

It is, in some ways, a humbling experience to visit a vineyard and see that the wine you had last night comes from a simple plant growing in dirt. But an extraordinary amount of energy has been expended over the centuries to try to understand the relationship between how wine tastes and the soil in which the grapes grow. From the ancients tasting the soil better to understand it, to modern satellite mapping of vineyard soils, the answer remains thoroughly speculative. Others, less interested in the relationship, have argued that soil is to grapes as the pinky toe is to a human: it keeps them from falling over.

This, in other words, is not the place for an exhaustive study of soil science or a commentary on the debate between those who believe and those who don't. This is the place, however, to point out some of the things that the history of grape growing has taught us.

Certain grapes have historically made their finest wine when grown in specific soil types, and when we discuss individual grape varieties, we will discuss their soil preferences. All of the important wine grapes, however, appear to have certain common touchstones in their soil preferences. Not surprisingly, all of the finest grape growing regions possess soils consistent with these preferences.

Broadly speaking, *Vitis Vinifera* vines tend to prefer deep, well-drained, loose-textured, relatively infertile soils. Wetter, more compact and fertile soils encourage vines to grow plenty of shoots and leaves, but also tend to take the vine's focus away from its berries. It may sound strange to say, but grapes provided with plenty of water and lots of nutrients are often the least ripe and least flavorful.

As we examine individual varieties, we will begin to identify individual soil types, but you should bear in mind that even though soils may have different names, their basic structures are very similar.

On Grape Variety

Though there are many different grape species, and many different varieties within each species, very few ever find their way into a bottle of wine. As we've said earlier, our focus in this course will be on *Vitis vinifera*, the 'wine bearing grape,' because most of the world's wines are produced from

this species. There are, however, thousands of varieties of *Vinifera* grapes, and so even within this species only a small number are regularly used for wine.

There are, of course, reasons for the high level of selectivity in the wine industry. Over the centuries, certain varieties have proven themselves popular both with those who drink wine and those who grow grapes. They have displayed desirable flavors, appropriate balance between acid and sugar in their juice, and sufficient resistance to disease and the vagaries of the weather to make them economical to grow. Each of these successful varieties has specific characteristics that helps wed them to a particular place with particular growing conditions: some bud early, some late, some ripen early, some late, and some seem to prefer to grow in specific soils such as limestone, granite, or slate.

A much smaller set of varieties, however, has shown high levels of adaptability and these varieties thrive in several different countries and regions, both in the old world and the new. These adaptable varieties will really be our primary focus here in Wine Fundamentals 1. Because of their wide reach, these are commonly known as 'international varieties' and most are familiar even to occasional wine drinkers—Chardonnay, Sauvignon Blanc, and Riesling are examples among the whites, Cabernet Sauvignon, Merlot, Syrah and Pinot Noir among the reds. What we will see, though, is that even if their basic taste profiles remain the same, these varieties express themselves a little bit differently depending on where they are grown.

On Growing Grapes

The journey wine takes from the earth to the table begins on the farm, and so it is worthwhile for wine lovers to have a passing knowledge of how grapes are grown. We don't want to dispel the romance of the vineyard, of course, but we do want to make you realize that farming is hard and sometimes heartbreaking work. Grape vines are plants, after all, and plants need to be tended and protected from the myriad pests and diseases which prey upon them.

On the Cycle of the Vine

To an alien, the human life cycle might be a curious thing: we are born helpless, slowly mature, pass through an adolescence during which our reproductive organs develop, enter a long period during which we are capable of procreation, live a little while longer, and die. Though this little sketch takes all of the poetry out of human existence, it is true. Along the way, we experience various difficulties, victories, tragedies, losses and gains. Grapes are no different, really, except that the period during which they are capable of reproduction is repeated yearly. Growers spend a great deal of time contemplating the yearly cycle of their vines in the interest of maximizing the quality of the fruit they produce.

It is worth remembering that the wine we drink is really a result of our intervention in the reproductive cycle of grape vines. Those lovely bunches of grapes are as sweet and aromatic as they are not so that we can make wine, but so that animals will find them appealing. Animals will eat the grapes, and the small seeds will travel through the digestive tracts and find themselves, a few hours later, back on the earth in a warm and fertile environment. Grapes, no less than any other living thing, simply want to reproduce themselves.

Understanding this cycle is particularly important for wine lovers, because it helps underline the importance of the growing season's contribution to wine. Not all vintages are identical and this is so because of weather variations at the various critical stages of the vine's yearly cycle. What follows is an outline of those critical stages.

Dormancy: In the autumn, grape vines enter into a period of dormancy which extends to the following spring. During this time, the vine's energies are concentrated on root development, and it appears leafless and dead. When ambient temperatures rise above 10 C in the spring, the vine emerges from its dormancy.

Bud Break: With warmer spring temperatures, tender leafy shoots begin to emerge from the awakened buds. The vine is particularly vulnerable at this point, because this new growth has little resistance to pests or cold temperatures.

Shoot Growth: In its early spring growth, the vine concentrates on producing leafy shoots. The leaves on these shoots will process energy from the sun and transform it, through the process of photosynthesis, into the fuel the vine needs to grow.

Flowering: Once shoot growth has produced sufficient energy for reproduction and temperatures have risen to about 20 C, the vine produces flowers which, after fertilization, will become the berries from which the wine will be made. Once again, this is a vulnerable stage of growth for the vine as the tender flowers are highly susceptible to cold, wet weather, and pests.

Fruit Set: Typically two to three weeks after flowering, the blooms are transformed into small, hard, green berries. This, too, is a vulnerable time for the vine and poor weather conditions can cause many of these berries to drop from the plant, drastically cutting vineyard yield.

Veraison: This critical stage is described by a French word which has wandered untouched into English. Roughly translated, however, the word means 'ripening.' At veraison, the hard, sour green berries begin to change color—to a translucent yellow-green for white grapes, and to the black or purple of red grapes. Changes occur within the grape as well: the pulp inside the berry begins to increase in sugar and decrease in acid.

Harvest: When the grapes have reached an appropriate level of ripeness—that is, when they are sufficiently sweet and their flavors have matured—they are harvested. There are several different ways to get the grapes from the vineyard to the winery, but if we paint in broad strokes, we can say there are essentially two: grapes may be harvested by machine, or by hand.

On Vineyard Management

Grape growers over the centuries have developed many techniques in order to assist the grape in its yearly cycle and help it to produce high quality fruit. These techniques fall under the rather grandiose heading of 'vineyard management.' But what we are really talking about here is farming—grape farming.

While all of these techniques are in the service of improving either the quality or the quantity of fruit the vine produces, they may also have more specific functions, such as improving resistance to particular pests or diseases. Some of these techniques are also, broadly speaking, 'cultural': they are done because they have always been done. Though there have been great advances in the techniques of grape farming in recent decades, it is also true that most farmers are, by their nature, relatively conservative.

Some of these farming techniques are employed even before the vineyard is planted, such as disinfection and tilling of the soil and grafting. Vines of the *Vitis vinifera* species have no resistance to the *Phylloxera* vine louse, and so they are normally grafted on to roots of another grape species native to eastern North America which is resistant to the louse. In the most common grafting style, a piece of dormant wood from a *Vitis vinifera* plant containing two or three buds—this is called a 'scion'—is joined to the dormant rootstock of a native eastern North American vine and then planted.

During the growing season, one of the most important things a grower can do is to manage the growth of the vine. Grape vines are climbing plants in their natural state, and so many growers (though not all) install something in the vineyard on which the grapes can climb. In modern vineyards, this usually takes the form of a trellis, made from posts installed along a row of vines and then strung with wire. In some older vineyards and in areas (such as steep slopes) where the installation of this type of trellis is impossible, vines are often individually staked. Some varieties grow well with no support at all and take the shape of small bushes.

With the trellis installed, or the vine staked, growers are able to manipulate the shape of the vine, or 'train' it. Far from being a species of bonsai art, training the vine allows growers to maximize air flow, sun exposure and, hopefully, the quality of fruit the vine produces.

The farm work does not end with the harvest. Once the vines have entered into their dormant phase, growers need to begin to plan for the next season. The most important step in this planning is the pruning of the vines. Grapes are aggressive growers and will produce a great many buds from which shoots will grow in the spring. In order to control the quantity of grapes—or 'yield'—for the next vintage, growers cut back the excessive growth to a specific number of buds. Pruning is essential for maintaining the health and balance of the vine. The great quantity of wood removed from vineyards after pruning has also become a popular choice for chefs. Grape cuttings burn very hot and are fabulous when used to grill fine cuts of meat.

On Problems of the Vine

Understanding the various problems which beset the vine might seem decidedly beside the point for individuals who simply want to enjoy wine. But these potential problems have much to do with why a wine might taste different from one vintage to the next, or might disappear altogether from the market. For this reason, it is useful to have at least some familiarity with the many pests, diseases, and weather hazards which influence a vine's health at various stages of its development.

What follows is a short and highly selective list of some of the more common of these potential problems.

***Phylloxera vastatrix*:** Though it is properly called *Dactylasphaera vitifoliae*, you will likely hear this root-feeding aphid described most often simply as *Phylloxera*. This destructive pest, which is native to eastern North America, feeds on the roots of the vine and, in feeding, injects a toxin which, for *Vitis vinifera* plants, is fatal. Only a few isolated regions in the world have yet to be affected by this pest. Though there is no way to eradicate the louse entirely, grafting *vinifera* scions to resistant North American rootstock has been effective in controlling the aphid's harmful effects.

Pierce's Disease: This fatal bacterial infection has generated much commentary recently because of its presence in the vineyards of southern California. Native to the southern United States, the bacteria is spread by small leaf hopping insects known as sharpshooters. A larger sharpshooter—the glassy-winged sharpshooter—has recently begun to spread the infection, causing considerable concern among farmers. Its larger size means that it has greater range, and hence greater possibilities for spreading the disease.

Nematodes: These small roundworms are naturally present in most vineyard soils. Some, however, feed on vine roots and can affect the health of the plant. They may also be responsible for spreading certain viral diseases from plant to plant.

***Botrytis cinerea*:** This unique fungal infection may be either positive or negative in the vineyard. When it affects unripe grapes, it can cause berries to split. In this form, the problem caused by the fungus is known as 'gray rot.' When it affects fully ripe grapes, however, the fungus can effectively concentrate the sugars and acids in the berries by reducing their water content. In this form, the fungus is known as 'noble rot' and is responsible for some of the world's most highly esteemed sweet wines.

Powdery Mildew: Also known as oïdium, this mildew can form a whitish film on the leaves and berries of the vine, which will inhibit photosynthesis and, hence, ripening. In extreme cases, the mildew can also cause berries to split. Powdery mildew was imported from North America to Europe

in the 19th century and caused considerable harm before it was learned that sulfur is an effective control.

Downy Mildew: Also known as peronospera, this is another mildew which affects the green parts and immature berries of the vine. Like powdery mildew, it caused considerable damage in 19th century Europe before effective controls were developed.

***Coulure*:** This condition represents difficulty at the vine's flowering stage and is typically caused by cool, wet weather. Vines with the condition may drop some or all of their berries after fruit set.

***Millerandage*:** This condition describes abnormal fruit set. Berries may be various sizes on a bunch or may be spontaneously aborted by the plant. Like *coulure*, it is typically caused by poor weather conditions.

On Making Wine

Wine, as we know, is a natural product. The earth made wine long before there were human beings to drink it and may well go on making it long after we disappear. Grapes grow and ripen. The ripe berries fall to the ground and shatter. Yeasts arrive and consume the sugar in the juice. One of the byproducts of the yeast's metabolization (or fermentation) of the sugar is alcohol. And so we have wine: grape-juice-flavored-alcohol.

Human beings have never been particularly content simply to allow nature to takes its slow and messy course. And so the sciences of grape growing and winemaking developed in order to guarantee that nature would be more consistent in offering up her gift of wine.

Winemaking today is a complex cluster of techniques with considerable variation from culture to culture, region to region, winemaker to winemaker. Our purpose here is not, however, to try to make sense of all of the diversity in the world of winemaking. It is, rather, to provide a basic outline of the process by which grapes are transformed into wine. The subtle national, regional, and personal differences which creep into the process can come later, after the foundation is laid.

On Making Red Wine

The most distinguishing feature of red wines is that they are...red. That may seem a silly thing to say, but it does point to the central question that winemakers must ask themselves before attempting to make red wine: How does the color get into the wine?

The juice from almost all grapes is clear. Red wine, however, is only made from red grapes, and so it is reasonable to believe that the color in the wine comes from the skins of the grapes. This, in fact, marks the primary difference between red and white wines. For red wines, the skins are an important part of the winemaking process; for white wines, they are not.

What follows is a basic outline of the red wine making process.

Crushing and Destemming the Grapes

'Crush' is one of the most exciting times in a winery's year. Many sommeliers choose to work crush at least once in their lives and some return to particular wineries each year to energize themselves and reconnect with the raw materials from which they make their living. Crush is the period of time during which the freshly harvested grapes arrive at the winery and are prepared for fermentation.

During the actual crushing, the skins are broken open to expose the flesh of the grape. Prior to crushing, the skins act as a protective covering for the flesh and seeds inside, but after the skin is broken, yeast will have access to the sugars in the flesh and juice. In humble terms, crushing is the equivalent of pulling back the plastic film over a TV dinner so that you can dig in.

At the same time as the grapes are crushed, winemakers may choose to remove all or some of the stems from the grapes. There are many considerations to removing or not removing the stems, but the primary consideration involves the issue of tannin. Both the skins of grapes and the woody parts of grape vines contain tannin and the winemaker must decide whether the tannins the stems would introduce into the wine are desirable or not. Whatever the winemaker's decision, the juicy, crushed grapes, with or without the stems, are now known as must.

A modern, programmable machine known as a crusher-destemmer is today typically used for both operations. There are several versions of the machine, but in one popular model, fruit is pushed against the side of a stainless steel tube by an inflatable bag and then allowed to fall through a grate which catches the stems. Before the arrival of this technology, however, crushing was typically performed by walking and stomping on the freshly harvested fruit. Many people in winegrowing regions walked around for days on purple feet.

Yeast

Yeast, a single-celled fungus which uses sugar to fuel its reproductive process, is the engine of fermentation. Winemakers tend to spend a great deal of time contemplating the complexities of what appears to be a very simple process. Yeasts metabolize sugar and produce ethanol and carbon dioxide.

The issue for winemakers is the first term in the equation. There are many different strains of yeast and they tend to produce different flavors, operate at different temperatures, and tolerate different alcohol levels. Choosing the yeast is one of the most important decisions confronting a winemaker.

But yeasts are naturally occurring organisms and many winemakers opt to take the leap of faith that, after the grapes have been crushed, yeasts which had existed on the skins of the grapes or in the fermentation vessels, will ferment the wine. These yeasts are referred to by various names in the wine industry—native, wild, ambient, indigenous. In a fermentation performed by ambient yeast, it is, in fact, multiple strains of yeast which are involved. They can operate in unpredictable and inconsistent ways and so must be monitored closely. But some believe that wild yeasts produce more complex, idiosyncratic, even 'local' flavors in the wine.

Other winemakers choose to avoid the potential pitfalls of wild yeast fermentation by adding a very specific yeast strain to the grape must. These yeasts are still natural, but have been selected and propagated in the laboratory. These are known as cultured yeasts and are typically more predictable than wild yeasts.

Alcoholic Fermentation (Primary Fermentation)

Fermentation is the conversion of sugar to alcohol and carbon dioxide (and a few other byproducts, including heat) through the metabolic activity of yeast. The following formula summarizes the basic equation:

Yeast + Sugar = Alcohol + Carbon Dioxide

It is through fermentation, in other words, that must becomes wine.

A long list of decisions confronts winemakers during the fermentation process. This list includes the yeast, the type and size of the vessel in which the must will be fermented, the temperature (or range of temperatures) at which fermentation will take place as well as how to maintain that temperature, the duration, and how to deal with the skins of the grapes, which will be pushed upwards as carbon dioxide builds up.

Fermentation Vessels

Fermentation vessels come in all shapes and sizes and are made from a range of materials. Some vessels, such as newish oak vats or small oak barrels, add some of their character to the flavor of the wine. Others, such as stainless steel tanks or concrete vats, do not

Sizes of vessels vary considerably from small barrels holding less than 300 liters to enormous tanks holding thousands of liters.

Fermentation Temperature and Duration

The temperature at which fermentation occurs is an important contributing factor in the style of the finished wine. Winemakers do not have complete freedom as far as temperature is concerned, because yeasts are only able to operate within specific temperature parameters: too cold and yeasts will go dormant; too hot and they will die. Most red wines are fermented at approximately 30 C, plus or minus a few degrees.

Though there other variables involved in wine style, we can say that cooler fermentations generally favor the preservation of primary fruit flavors while warmer fermentations tend to favor the extraction of more structure from the grapes.

The duration of fermentation is directly related to the temperature of the must, the yeast strains involved and the quantity of sugar present. Red wine fermentations may take anywhere from days to weeks.

Managing the Skins

Because carbon dioxide is a byproduct of fermentation, the skins in a vat of fermenting red wine are pushed upwards to the top of the must where they form what is known as the cap. Winemakers, however, want to keep the skins in contact with the juice during the fermentation in order to extract their color, flavor, and tannin, and so they have developed various techniques to do that. It is also important that the cap not dry out and solidify, because if it does, it becomes more vulnerable to the invasion of various harmful bacteria which could spoil the wine.

Perhaps the two most familiar techniques for keeping the skins in contact with the juice are what are called, in French *pigeage* and *remontage*.

Pigeage is typically translated into English as ‘punching down’ and involves the use of some sort of paddle—or, traditionally, the feet of the winemaker and his or her assistants—to push the skins back down into the juice. This is performed at regular intervals during fermentation. *Pigeage* is both gentle and labor intensive and so is most commonly used for small batches of must and for more delicate varieties.

Remontage is typically translated into English as ‘pumping over’ and involves the pumping of juice from below the floating skins onto the cap. This technique is used for a wide range of wines and is especially common for large batches which would be too difficult to punch down

Modern technology has added several other techniques, such as tanks with built in grates which keep the cap submerged in the juice, and rotary fermenters which turn constantly during fermentation and eliminate the need for cap management.

Separation of Juice and Solids

When fermentation is complete, or when the winemaker judges that the juice has spent sufficient time in contact with the skins, the wine must be separated from the skins and seeds in the tank. The first step in this process is to drain the juice inside the fermentation vessel. This juice is known as the 'free run' juice and is generally considered to be the finest portion of the finished wine. Many—though not, by any means, all—of the finest wines on store shelves are composed exclusively of this free run juice.

Pressing of Solids

The skins from the must are still very wet once the free run wine has been drained away and they must be pressed to extract the liquid they contain. There are several techniques used to do this and modern technology has provided some particularly effective machinery to do this in a gentle way. Particularly intense pressure on the solid matter can extract bitter flavors—particularly from the stalks and the seeds. The modern bladder press, which uses an inflatable bag to press the skins against the sides of a large stainless steel tube, can be programmed to exert different levels of pressure, allowing the winemaker considerable freedom.

Also still in use are screw-type presses. Today, some small producers advertise their wines as 'basket pressed' to indicate that they have been pressed in a screw-type press.

Once the solids have been pressed, the winemaker must decide what to do with the wine that comes out, which is known as the 'press wine.' This wine is typically paler and more astringent than the free run wine. With some varieties, and in certain vintages, however, it may be desirable to blend some or all of the press wine into the free run wine. It is important to remember, however, that the fate of the press wine is never absolute. Every new vintage requires new decisions.

Malolactic Fermentation (Secondary Fermentation)

Malolactic fermentation (or MLF) is the conversion of malic acid to lactic acid through the activity of bacteria. This process is almost universal for red wines. It is sometimes known as 'secondary fermentation' because it usually happens after alcoholic or 'primary' fermentation.

All wine contains acidic. However, there are several different types found in wine. One of the sharpest is malic acid, an acid most familiar to tasters in green apples. In red wines, it is rarely desirable to maintain high levels of this acid in the wine and so the natural process of MLF is encouraged. The lactic acid—familiar from dairy products—which results from this process is not as sharp or as hard tasting as the malic acid. Typically MLF takes place after the primary fermentation has finished.

Winemakers observe that wines which have undergone MLF are more stable and, for lack of a better term, taste 'winier' than those which have not. Whatever the case, wines which are to be blended are typically kept apart until after MLF is complete and the winemaker can have a better sense of how the wines will interact when they are put together.

Maturation

Producers may choose to mature and/or blend their wines before sending them off into the world. The goal of maturation is to hold the wine back from the market to allow it to develop a particular set

of flavors. Both the duration of and the vessels used for maturation are highly variable. In fact, maturation and blending processes may vary for a particular wine over a series of different vintages.

Finishing

Some producers like to filter their wines before bottling, while others prefer to take the not inconsiderable risk of bottling their wines unfiltered. Whatever their choice, when the wine is ready it is bottled and sealed with cork, screw cap, or one of the several other options available today, labeled, and sent off into the world.

On Making White Wine

There are many similarities between the making of red wine and white wine. But there is also one enormous difference: white wines are pressed before fermentation. In other words, when we make white wine, we simply ferment grape juice. No solid matter (skins, seeds, stems) is present during the fermentation.

The other major difference between red and white wine making involves the durability of the raw material. White juice is more fragile and vulnerable than the mix of juice and solids which constitutes the must for red wine. For this reason, white wine making involves a greater use of protective techniques: higher doses of sulfur, greater use of refrigeration, greater use of modern, stainless steel tanks.

Below is an outline of the white wine making process.

Crushing, Destemming and Separation of Free Run Juice

Though this series of steps is not always performed in white wine making, it is quite common. It may seem odd to bother with crushing and destemming, given that the grapes will head to the press directly afterward. However, crushing and destemming allows winemakers to gather in the top quality free run juice which emerges from crushing and also allows them to eliminate the bittering qualities that pressing the grapes with the stems can introduce into the juice. The free run juice may be fermented separately, depending on the goals of the producer.

Grapes for white wine may be white, black, or several shades in between these poles. When crushing black grapes for white wine, winemakers must work quickly in order to minimize the contact between the pigmented skins and the clear juice.

Pressing

After crushing and the separation of the free run juice, grapes for white wine are pressed. The device used is identical as that used for red wines. However, once again, producers making white wine must act quickly in order to minimize oxidation and, contact between the juice and the skins.

Settling and Clarification

The juice which will be fermented for white wine is typically clarified before fermentation is allowed to begin. This step is, again, optional, but it is also very common. Clear juice is easier to monitor during fermentation and yeast are more efficient working in clarified juice.

Though there are devices to assist with clarification, the most common technique used in high quality white wine making is a combination of gravity, time, and patience. Today, white wines are

typically stored in stainless steel tanks at cool temperatures to preserve the juice against degradation and simply allowed to settle naturally. When the solid matter has settled to the bottom of the tank, the juice is moved (this process is known as 'racking') to the vessel in which it will ferment.

Alcoholic Fermentation: Yeasts, Vessels, Temperature, and Duration

The formula for fermentation is no different for white wine than it is for red wine. Yeasts metabolize sugar producing alcohol and carbon dioxide. The mechanics of the process are, however, a little different.

White wine is typically fermented at cooler temperatures than red wine, better to preserve the primary flavors of the juice, and better to protect the juice from oxidation. Because of the cooler temperatures, fermentation is also typically longer and slower for whites than for reds.

Given that much of what we have described so far involves the preservation of the primary flavors of the grapes themselves, it likely comes as no surprise to learn that most white wines are fermented in neutral vessels, such as stainless steel. Some white wines—Chardonnay, for example—seem to marry well with the flavors provided by oak barrels, but most do not. Most stainless steel vessels have the added benefit of allowing the winemaker relatively easy control of the temperature of the fermenting juice.

Yeast selection is equally important for white wines. Because the skins of the grapes are not included in the fermentation vessel, it is a little less common for white winemakers to opt for ambient yeast fermentation.

Malolactic Fermentation (Secondary Fermentation)

MLF is as rare for white wines as it is common for red wines. Much of what we have described so far about white winemaking has had as its goal the preservation of the primary flavors of the grapes themselves. MLF, which adds buttery, dairy type aromas and alters some of the acid in the wine, is generally seen as undesirable in white wine.

There is, of course, one well-known exception to this rule: white wines which have seen the inside of a barrel during fermentation or maturation. Though it would be a mistake to believe that all or even most wines which have been barrel fermented or matured undergo MLF, it is also true that many winemakers believe that the buttery qualities added by MLF marry well with the toasty vanilla flavors added by barrels.

Maturation

White wines are matured in much the same way as reds, though there are greater degrees of caution exercised by winemakers. White wine is more vulnerable to the negative effects of oxidation and so it is much less common to find white wines which have been matured in an oxidative environment, such as a barrel. Most white wines, for that matter, are bottled very soon after fermentation is complete in order to preserve their delicate aromas.

Some wines are made using a technique of flavor enhancement which does not involve barrels or MLF—a technique known in French as *sur lie* and in English as 'lees aging.' This technique, which can introduce added yeasty aromas to the wine, involves allowing the fermented juice to remain in

contact with the yeast after fermentation has completed. The yeast has done its job, run out of food, and died. It settles to the bottom of the fermentation vessel to form what are known as 'lees.' While the lees decay, they contribute the flavors of their mortality to the wine.

Finishing

Because of the crystal clarity most consumers expect in their white wines, it is much more common for them to be fined and filtered before bottling. Fining involves the addition of a substance to the wine which will effectively gather in whatever solids remain in the wine and then settle to the bottom of the maturation vessel. Egg white, fish bladders (isinglass), and a type of clay known as bentonite are all used as fining agents.

After fining and/or filtering, the wine is ready to be bottled and shipped off to market.

On Making Rosé Wine

Knowing that the juice of most grapes is clear and that color is leeched out of the skins of the grapes when in contact with the juice is probably enough information to go on to guess how pink wines are made. Though there are other methods used (such as blending a red and white wine together), by far the most common is what, in French, is known as the '*saignée'* method, from the French verb *saigner*, 'to bleed.'

After crushing, the skins and juice of red grapes are kept in contact until the winemaker judges that sufficient color has been extracted. The grapes are then pressed and the pink juice is fermented, matured, and finished just as a white wine would be.

On Sulfur

Sulfur has been something of a popular subject among winemakers and consumers in recent years, and so we have decided to include this brief mention of its uses in winemaking. The truth is that sulfur addition is almost universal in winemaking, because it has proven to be an effective anti-oxidant, both in the vineyard and in the winery. At almost every stage of the process we have described above, sulfur may be added—crushing, pressing, racking, bottling.

It is also true, however, that most winemakers have attempted to reduce the levels of sulfur in the wines they produce over the last two decades. The history and ultimate effects of these attempts are yet to be written, but a basic awareness of the role of sulfur in the winemaking process is important.

On the Craft of Tasting

Even the most forward among us can get a little nervous when we are asked to taste and describe a glass of wine. There's something about the process, the swirling and sniffing and slurping and spitting that seems a little contrived, perhaps even a little comical. Happily, though, this is one of the rare occasions when peer pressure is a good thing: your teacher is doing it, your classmates are doing it. Why should you feel embarrassed? Join in.

The truth of the matter is that all of these s-words have a purpose. They are, in effect, steps in the process of getting to know what is in your glass. We taste wine in much the same way as we fall in love: we see, we talk, we kiss, we know. The steps may be different in name, but both falling in love and tasting wine are ultimately about the growth of intimacy and knowledge.

On the Mystique of Tasting

This is not to say that most students don't feel fear when first starting out learning to taste wine. But that fear is often inspired by a set of myths which have managed to drop a veil of mystery over the craft. The most persistent of these is that some individuals are born with the ability to taste wine, while others are hopelessly and forever excluded from developing this ability. Tasters are born, so the story goes, not made.

This is not true.

One of the other persistent myths, which tends to valorize this or that taster and confer on him (usually him) the ability to identify endless wines down to the vintage, vineyard, and shoe size of the winemaker, comes to us from an age different from our own. The sense of inadequacy this kind of myth can inspire in today's tasters is quite out of step with current realities.

Fifty years ago, the wine world was not as diverse as it is today. Particular grape varieties and wine styles were rooted in particular places. Approaches to winemaking tended to have very localized, regional identities. If a wine looked and smelled like Pinot Noir, then it came from France's Burgundy region. If it was a very good wine, then it probably came from one of a few villages in the northern half of Burgundy's famous golden slope—the Côte d'Or.

Since the end of World War II and especially since the late 1960s, the wine world has been transformed. Grape varieties are becoming increasingly dispersed. Pinot Noir, to continue with our example, is now successfully grown in several countries—the United States, New Zealand, Italy, Germany, Australia, Chile. This migration of grape varieties is paralleled by the migration of people. A New Zealand Pinot Noir now may be made by an Australia-educated Croatian winemaker who has also worked extensively in Burgundy, Greece, and Bulgaria.

A glass of wine today, in other words, is considerably more complex as far as its influences are concerned than it used to be. In the face of all of the various social, cultural, intellectual, and environmental influences that express themselves through our glass of wine, students must bring an extraordinary degree of patience and humility to the task of learning to taste. Developing into a good taster takes time.

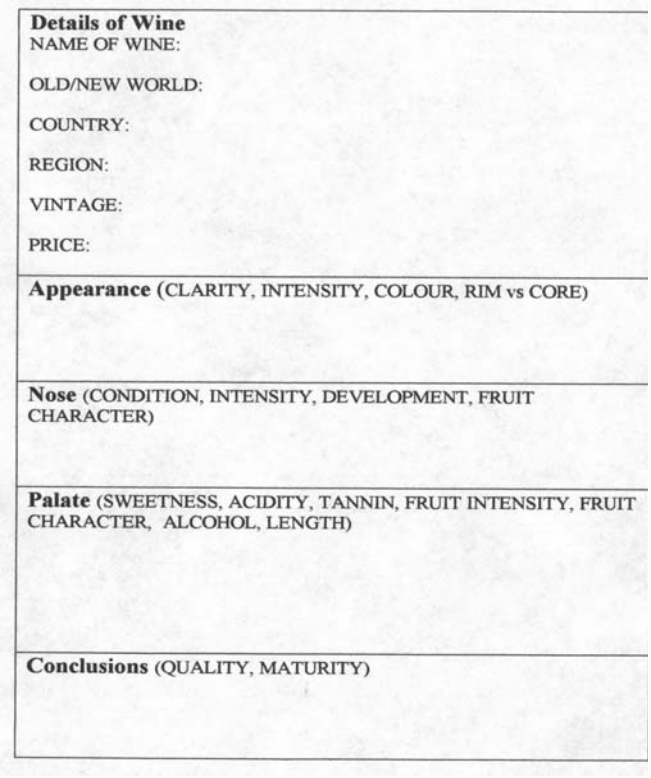
We remarked earlier that we have little use for the claim that good tasters are born, not made. But our belief that good tasters can be made begs the question: How does one become a good taster?

There is a simple, one word answer to that question: discipline.

On Discipline: The ISG Tasting Sheet

In order to help students develop as disciplined tasters, the ISG uses a tasting sheet on which students record their experiences of each wine. The sheet is a modification of a fairly standard approach to tasting. Though it is unique to the ISG, it is not at all dissimilar from tasting sheets supplied by wine competitions or other educational bodies.

The tasting sheet is designed to follow the way in which we bring our senses to each glass of wine: first we look, then we smell, then we taste, then we evaluate. We approach every wine in exactly the same way and for every wine we taste, we write the same kind of carefully structured tasting note to record our experience.



Details of Wine
NAME OF WINE:

OLD/NEW WORLD:

COUNTRY:

REGION:

VINTAGE:

PRICE:

Appearance (CLARITY, INTENSITY, COLOUR, RIM vs CORE)

Nose (CONDITION, INTENSITY, DEVELOPMENT, FRUIT CHARACTER)

Palate (SWEETNESS, ACIDITY, TANNIN, FRUIT INTENSITY, FRUIT CHARACTER, ALCOHOL, LENGTH)

Conclusions (QUALITY, MATURITY)

At every step of the tasting process, we are learning things and getting to know the wine in our glass. And by the end of the process, we should feel comfortable enough with what we have learned to offer up evaluations regarding the quality of the wine and its potential to develop into something interesting with further maturation.

What follows is a description of the terms on the ISG tasting sheet. By the end of this course, you should become so familiar with those terms and the kind of tasting note they encourage you to write, that you will be able to write a high quality tasting note right in the middle of dinner—on a napkin, say, or a table cloth.

On Appearance

First we look. When we look at a tasting sample, we want to determine several things: whether or not the wine is clear, what color it is, and how intense the color is.

Clarity

The first term on the tasting sheet is the only term that is potentially confusing. When we ask whether or not a wine is clear, we are asking whether or not we can see suspended particles in the wine in the form of a cloud or a haze or great chunks of sediment. It is entirely possible that we can't see through the wine (that is, it is 'opaque') but that we also can't really see anything floating around

in the liquid. In this case, the wine will still be called clear, but we will also note that the wine is opaque. If we can see through the wine, we will note that the wine is clear and transparent.

Color

After assessing the wine's clarity, we need to examine the color of the wine—its hue (or actual color) and its intensity (how pale or deep, light or dark the color is). Color tells us a great deal about the wine in the glass and so it is important to develop a consistent vocabulary related to wine colors. That being said, you will likely find that naming the wine's color is one of the more divisive events during a group tasting.

When we look at the actual color or hue of the wine, we focus our attention on two different areas. While holding our small tasting sample (which should never be more than 1 ounce) at a 45 degree angle against a white background, we look at both the core and the rim of the wine. The core is the center of the wine, the area with greatest volume in the glass when held at an angle. The rim is the edge of the wine, the area with the least volume.

Take note of the color in each area. The difference in color between the core and the rim of the wine is an important aid in determining the level of maturity of the wine, and also can go far in suggesting the grape variety behind the wine in your glass. White wines typically appear watery at the rim, while red wines can be anything from purple through brown and orange.

On the Nose

Human beings are not very good at identifying scents, paling in comparison to those drug-and cancer-sniffing pups we've all seen toiling on television. Then again, only the loneliest of us is likely to be found sharing a fine old vintage with our dog, so the point is moot. Even though we are weak smellers as a species, we can develop our sense of smell and our memory of particular smells through regular, disciplined practice.

Though there are many subtle variations among tasters, the basic process for nosing a wine is to swirl the wine gently in the glass and then to use our nose to suck up the aromas in the glass through one moderate sniff or a series of short ones. It is of enormous importance that the swirling and sniffing be done in exactly the same way for each wine, even wines which seem to lack aroma. A lack of aroma will tell us far more about the wine in our glass than a round a hellfire swirling and aggressive snorting will.

The gentle swirling we do is designed to break the surface tension of the liquid and release the volatile, aromatic compounds so that we can suck them up through our noses. In rather base terms, it is roughly the equivalent of lifting a cheek during a bout of flatulence better to share the experience with those around you.

Condition

Our first consideration when nosing a wine is its health. Various ailments can affect a wine at various times—in the vineyard, in the winery, during bottling, transport or storage. Today, however, we live in an age where we encounter far fewer unhealthy wines than we did even twenty years ago. In most cases, even novice wine tasters are able to identify a flawed wine, even if they are unable to

name the specific flaw. Flawed wines exhibit unpleasant odors of things like rancid nuts, mold, sweaty animal fur, rotten eggs, and bruised fruit.

If the wine is not healthy, we can still continue to taste the wine (common wine flaws are not harmful to your health), but in most cases our tasting will be over.

Intensity

If the wine is healthy, our next consideration is the intensity of the aromas. What we are asking ourselves here is essentially how easy or how difficult it is to smell what is in our glass. Different grape varieties typically display different levels of aromatic intensity and so the level of intensity—low, medium, or high—can tell us a great deal about what we taste.

Development (Aroma/Bouquet)

Development is another potentially confusing term and we often choose to substitute the terms 'aroma' and 'bouquet' instead to clarify the meaning of the term. When we nose a wine, we want to ask ourselves whether the scents that we draw out of the glass indicate that the wine is youthful or mature. In the case of our substitution, 'aroma' refers to youthful or 'undeveloped' scents, and 'bouquet' refers to mature or 'developed' smells.

To make this clear, we can think of it in terms of the human body. Take, for example, a man. When he is born, he comes programmed with genetic information. This information tells his body how to develop. In childhood, he grows taller and heavier, develops teeth so that his diet can change to one favoring growth. Next comes adolescence during which his reproductive organs develop, hair grows in strange places, his voice changes, and he continues to grow taller and heavier. If he is lucky, following adolescence his body is fully mature and remains so for a long period of time before it begins to break down on its slow journey toward death. We might meet this fantasy man several times—as a child, as a mature person, and as an elderly individual. That is, we might meet him at different stages of his development.

When we taste wine, we are essentially asking ourselves when we are meeting it, or at what stage of its development our encounter is taking place. And just as people have common characteristics which define them in youth, and different characteristics which define them in maturity, so do wines.

In youth, wines are governed by aromas related to the grapes from which they are made. Each variety has what is sometimes weightily known as an 'aromatic signature,' and when we study individual varieties later in this text, we will make note of the common signatures of each. Getting to know these signatures is one of the most important steps you can perform in your development as a taster. In almost every case, these aromatic signatures are fruity in nature. A young wine made from Syrah may smell of blueberries and plums, or a wine made from Pinot Noir may smell of fresh strawberries.

As wines mature, however, the intensity of the fruity scents declines and they begin to develop a complicated set of smells which tend to be earthier, even erotic in nature. That is, they begin to develop a bouquet. Ten years later, that Pinot Noir which once smelled of fresh strawberries may smell of mushrooms, kennel cages, and wet leaves. These new smells, which are the result of the wine's maturation in the bottle, are what we mean by bouquet.

This distinction may see precious at the moment, but as you experience more and more wines of different maturity levels, its importance will be clear.

Fruit Character

After making certain the wine is healthy and noting its level of development, tasters record what they actually smell. Though we describe this as 'Fruit Character,' not all of what we smell in wine is fruity in nature. We may smell something earthy, or floral, for instance, and this is also where those smells are recorded.

This area, too, can cause many students some concern. Most of us have encountered one of those long-winded, extremely specific descriptions of wine smells which occasionally crop up in popular wine writing (or spoofs of the same): "This wine has the unforgettable scent of a raspberry I ate at the Davidson's Winnebago-warming party on Cape Cod in August, 1992. It came from the middle of a 4-quart basket and though lightly crushed, it was still juicy and bright. While I chewed it, I watched a one-legged seagull hop about in the surf and knew in my heart that my marriage was over." This is cute perhaps, but it doesn't really tell us a whole lot about the wine in question, especially if we don't have access to that vintage raspberry.

There is no secret way to become skilled at identifying particular aromas. There is, however, a long and slow process during which we simply pay attention to the things we smell around us. If we decide to become tasters, we must consciously choose to remember smells and we must take every opportunity to refresh our memories about what particular things smell like. Yes, the Produce Manager at your local market may look at you a little strangely as you sniff the stem-end of a honeydew melon or lean over a pile of peaches inhaling deeply. But these social miscues are essential stopovers on the route to becoming a successful wine taster.

So, pay attention to the aromas of things.

The second, and perhaps the most important process involved in learning to taste is what we can call 'fidelity.' It is one thing to read that Cabernet Sauvignon typically smells of black currant. It is quite another thing actually to smell black currant when nosing a Cabernet Sauvignon. Under no circumstances should you write down aromas which you think you ought to smell but don't actually smell. Only record what you actually smell and only be as specific as your experience allows you to be. This is what we mean by fidelity: being true to yourself as a taster.

For most new tasters, the descriptions that will appear on tasting sheets are relatively vague. A wine may smell simply 'Fruity' when first encountered. With more experience, a taster may identify that fruitiness as 'Red Berries.' An even more experienced taster may identify the same scent as 'Raspberry.' But be faithful to your own nose first before contemplating the more specific aromas offered by other tasters.

Large, general categories for aromas that beginning tasters might use include the following: Fruity, Earthy, Floral, and Vegetal.

On the Palate

To some, the strange music of the mouth, the slurping and sucking and spitting, which accompanies professional wine tasting must seem positively obscene. It is, for certain, a little indelicate, but there are reasons for all of these sounds.

Once we've gotten acquainted with the wine in our glass with our noses, it is time to introduce it to our palates. When we speak of the palate, we are speaking primarily of the tongue and the sense of taste, and so it is worth having a brief introduction to the tongue.

The tongue is one of those wonderfully simple, wonderfully complex organs that pop up so often in the human body. Basically a muscle covered with a mucous membrane and huge numbers of taste receptors (or 'buds'), the tongue is the primary delegate responsible for our sense of taste. And our sense of taste is intimately related to what is sometimes described as the 'geography of the tongue.'

That geography gives the tongue access to four primary tastes—sweetness at the tip, bitterness at the back, sourness at the sides, and saltiness at the upper rear. This last sense is of no importance for the wines we will be studying, though the ancient Greeks and Romans, both of whom had a penchant for adding seawater to wine, would have made much use of it.

When we take a sip of wine, we must take care to move it about inside the mouth, so that it gets a complete tour of the landscape of our tongues, cheeks, and teeth. Only then can we get a coherent picture of the various elements which define the wine.

Sweetness

We experience sweetness primarily at the tips of our tongues. When we speak of sweetness in wine, we are speaking of what is typically called 'residual sugar' and of our ability to detect it. Tasting wines with different degrees of residual sugar will help you to develop a sense of how to use the agreed upon vocabulary associated with wine: dry (for wines with no detectable sweetness) through off-dry, medium-dry, medium, medium-sweet, and fully sweet.

Sourness (Acidity)

All wine is acidic, with white wines typically moreso than reds. We experience acid flavors at the sides of our tongues. They are the flavors that make our mouths water and represent the yin to sweetness' yang in any glass of wine. As you experience wines with different levels of acidity, you will become comfortable measuring acidity from low to high.

Tannin

Though not technically a taste, tannin is something we experience on our palates, and so must be noted during the tasting phase. Tannin is a component of the skins and stems of grapes, and so is only important to note for red wines.

The sensation produced by tannin is one of astringency, a drying sensation we experience toward the front of the mouth—on the gums and upper cheeks. High levels of tannin can be almost painful, especially when the wine in which they are found is low in acidity. Just as acid balances sweetness, it also does much to moderate our experience of tannin. Tannin is mouth drying; acid is mouth watering.

Body/Alcohol

All wine contains alcohol. Some, however, contain more than others, so it is important to learn to distinguish alcohol levels on the palate. We experience alcohol primarily toward the back of the mouth as a 'hot' or burning sensation. Alcohol also is the prime mover in what is typically described as the body of the wine—essentially the thickness or thinness of the wine in the mouth.

We typically measure alcohol in terms of low to high and body in terms of light to full.

Fruit Intensity and Character

Just as we record the kind and degree of aromas when we smell the wine, we do so as well when the wine is in the mouth. Very often, our comments will be almost identical in both places, but sometimes there are substantial differences between how the wine acts for the nose and how it acts in the mouth. The reasons for this are many, but there are two which are important for us: the mouth warms the wine, which increases the release of aromas, and the aromas in the wine take a different route to our processing center. From inside the mouth, aromas take the back way—what is sometimes called the 'retro-nasal route.' For some tasters, and for certain wines, this route may be more informative than the direct nasal route.

Finish

We all value a love that is lasting. Professional tasters value wine flavors that are lasting, too. The finish refers to the length or persistence of the wine's flavors in the mouth. Typically, high quality wines are possessed of great density or concentration of flavor, and this extends the length of their finish. Lower quality wines made from heavily cropped vineyards tend to be more fleeting on the palate. This is not necessary a bad thing, of course. Few wine drinkers have the constitution for a regular diet of the world's most concentrated wines.

Because finish is measured as duration, we use the language of time to describe it: short or brief, moderate, long.

It is important to let the wine finish when you taste, before recording other elements such as sweetness, acidity, and so on. Sip the wine, swirl it about the mouth, spit it out, and then wait for the experience to be over before writing your notes.

On Conclusions

The entire tasting process to this point has been physical, sense-based: we look, we sniff, we taste. Once we've completed these physical tasks, it is time to bring our minds and our experience to bear on the wine.

Balance

When we tasted the wine, we made note of several things—tannin, acid, residual sugar, and so on. When we consider the wine's balance, we are stepping back and asking ourselves how all of these elements interact. In an ideal wine, all of the parts combine harmoniously to create a whole which is greater than the sum of its parts. This, however, is not always the case, as you will find. Sometimes a wine's tannins completely dominate its profile, for example. Balance is an important component in measuring the overall quality of a wine, its potential longevity, as well as its potential food companions at the dinner table.

Maturity

Comfort at judging the level of maturity of a wine is challenging to develop. It is also potentially rewarding. All wines get older. Time, as the saying goes, waits for no wine. But what we ask ourselves when we contemplate maturity is whether the wine, as it gets older, will become more charming, interesting or complex.

This is likely to be one of the more contentious issues in any group tasting, if only because even professionals don't always agree about when a particular wine will be at its most charming. For that matter, whole ethnic groups often differ: the English tend to prefer their Bordeaux old; the French tend to like it young and sometimes sneer at the 'necrophilia' they hear of across the Channel.

Professionals, however, need to set aside personal tastes when judging maturity and decide whether a wine is ready-to drink, whether it will improve with age, or whether it is already too old to be enjoyable.

Quality

Studies conducted among professional tasters have shown that in almost every area we have covered so far—the appearance, the nose, and the palate—their tasting notes can differ substantially for the same wine. Where they tend not to differ, however, is in their assessment of quality.

Quality is a statement about the relative merit of a wine measured against its price. We should not expect the same from an $8 wine as we do from a $40 wine. However, when all of its components are considered against its price, it still may be an excellent wine. Wines may be described as poor, average, good, very good, or excellent.

On Labeling

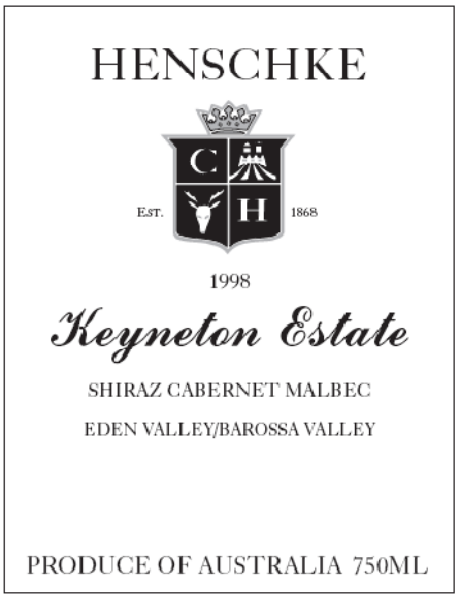
Even the most seasoned sommeliers occasionally find themselves in a quandary when confronted by a new label. The confusion comes from the lack of uniformity in labeling laws as we move from nation to nation, region to region. There are international standards in the most general sense—all labels must show alcohol content, volume, and contain the address of the party responsible for the product—but the fine details on wine labels vary from place to place. Some labels seem particularly informative and clear, while others seem to be written in a strange code that will require the Rosetta Stone before they can be understood.

The unfortunate truth is that learning to unpack all of the information contained on wine labels is a lifelong pursuit. Elements of that pursuit include learning the specific national and local laws defining wine labeling (and keeping up-to-date with their unceasing revision), a little study in several foreign languages and a broad knowledge of grape varieties and individual producers.

Even though what I've just said may inspire you to throw up your hands and switch to drinking tap water, there are some short cuts which can help lay a foundation for reading labels. In very broad terms, there are three basic ways in which wines are labeled: by region (or geography), by grape variety, and by brand.

Though the labeling choices available to wine producers are determined by national and local law, we might suggest that the different approaches to labeling also raise some of the philosophical differences which exist in the wine world. The type of label a producer uses goes far in suggesting the producer's answer to a basic question: 'What most influences the taste of a wine?'

In practice today, regional, varietal and branded labels are increasingly mixed and so the distinctions we are drawing between the styles is more for the sake of clarity than to describe the world as it truly is. But we can still do our best to determine which, if any, style receives the greatest emphasis on a mixed label.



On Varietal Labeling

To our fantasy question regarding what most influences the taste of a wine, a producer opting for a varietal label may state, 'Well, the grape variety, of course.'

Though varietal labeling is most associated with countries of the new world—Australia, Chile, and the United States, for example—it is not at all exclusive to the new world. Germany, for example, typically includes grape varieties on its labels, as do some French, Spanish, and Italian regions.

No less than other forms of labeling, varietal labels must conform to local laws. When varieties are listed on a label, the wine must contain a minimum percentage of the stated variety.

For all of that, varietal labeling is a relatively recent phenomenon and owes its existence to the growing sophistication among wine consumers. In the distant past, people simply drank wine, and most often local wine. Today, however, wine is a global phenomenon and varietal labeling is seen as a way to assist drinkers in establishing commonalities across a wide range of wines. Wines may come from Germany, Russia, China, Borneo, California, or Peru. But if they are all labeled 'Chardonnay,' drinkers will have a reasonable sense of how they will taste.

On Regional Labeling

To our fantasy question about influences on wine taste, a producer opting for a regional label may respond, 'The place where the grapes are grown.'

Though regional labeling is most associated with various European countries, producers in the new world seem increasingly interested in identifying their wines with the regions in which they are produced. There are many reasons for this, some of which would require a book-length manuscript to explain. But for now, we can suggest a pair of issues which are important both to producers and to those who make the laws which govern wine labeling.

The first is this: unlike a person, a plot of land cannot choose to make itself better. This may seem an odd thing to say, but it is an important consideration when trying to understand geographical labels.

Human beings have largely gotten rid of the concept of 'hereditary entitlement,' the idea that some individuals are naturally better or naturally have more potential to live a significant life. In the wine world, however, the idea of hereditary entitlement is very much alive. Some plots of land, because of their combination of soil, slope, sun exposure—a whole host of environmental factors—are considered to have greater potential to produce good quality grapes than others. It is natural for those in possession of such plots to want to emphasize them on their labels.

The second is this: many believe that what we taste in wine is an expression of the total environment in which the grapes were grown and the wine was made. The soil, the climate, the grape variety, the hand of the winemaker—all of these express themselves through the wine in our glass. This idea is what in French is known as *terroir*, and it is a remarkably durable concept in the wine world. It is as unprovable and mystical as a deity, of course, because of the sheer number of variables involved in the equation. But lack of proof has never been an impediment to belief.

Put another way, *terroir* expresses a form of destiny: given a set of interrelated ecological, mental, and spiritual forces, a wine is what it is because it cannot be otherwise. Ultimately, I suppose that it

(like destiny or any other quasi-religious concept) is a matter of faith: either you believe in *terroir* or you don't. The important question to ask yourself is whether or not faith in *terroir* makes your experience of wine more enjoyable, more intense, more meaningful.

Regional names on labels may refer to very large or very small places and so regional labels tend to make fairly significant demands on the geographical knowledge of consumers. Nevertheless, regional labels are dominant in some countries and learning to read them is a necessary step in any wine education.

On Brands

All wines are, to some extent, branded, simply by virtue of naming the producer (or responsible party) on the label. However, some wines take pains to emphasize their brandedness before the grape variety or the region from which the grapes derive. The brand name, in addition, may be the only one on the label which is unique to the producer. There are many Chardonnays produced in California, but only one by this or that particular producer.

Though branding is often associated with new world wines, the development of brands has a long and rich history in Europe as well. Branded wines typically are designed to ensure consumers a consistency of product and price and are increasingly important as more and more novice drinkers take up wine drinking as a lifestyle choice.

On Governing Bodies and Label Notation

Wine labels have the capacity to tell us a great deal about is inside the bottle. But they also serve an important purpose in the regulation of the wine industry. As we've said before, labeling, whether by grape variety or region, is strictly controlled by various government organizations.

Where varietal content inside the bottle is concerned, every country establishes minimum percentages. Where regional labels are concerned, industry bodies establish the geographical boundaries attached to each particular name. Often, they also establish a set of standards regarding the growing and making of the wine within those regional boundaries. Though the name of the governing body itself rarely, if ever, appears on the label, the governing body is responsible for approving the wine, usually first and foremost on the geographical origin of wine, but also for issues such as grape variety, yields, growing techniques and how the wine s made. It is important to be able to identify the marks of these governing bodies on labels, which are designed to guarantee the wine's authenticity to consumers.

The following is a list of the marks of some of the governing bodies. All of the initials are acronyms in the native languages stating that the wine's geographical place name is authentic and that the growing and making of the wine is controlled and regulated.

AOC (sometimes just AC)—*Appellation d'Origine Controlée*—France

DOC—*Denominazione di Origine Controllata*—Italy

DO—*Denominación de Origem*—Spain

DOC—*Denominação de Origem Controlada*—Portugal

Qba—*Qualitätswein bestimmter Anbaugebiete*—Germany

GI—*Geographic Indication*—Australia

AVA—*American Viticultural Area*—United States

Take the time to study the labels on the wines you drink. With time and a little research, you will find that your ability to understand the occasionally arcane information on them will increase substantially.

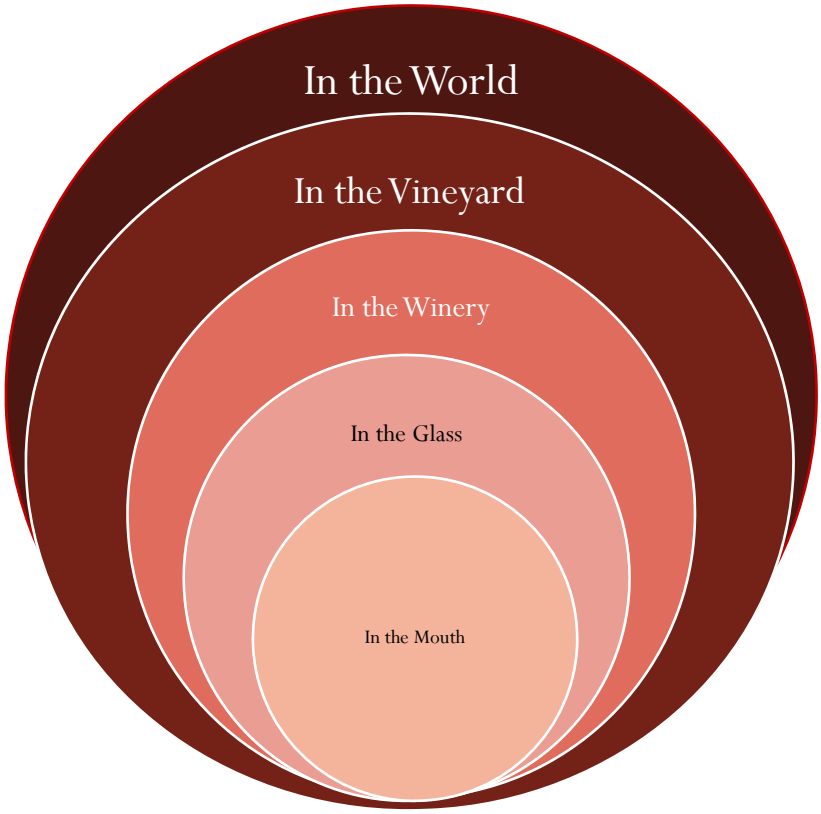
On Approaching Grape Varieties

A wine producer in south western France once observed that he enjoyed receiving visitors from English speaking countries at the winery because at least they usually knew what grape varieties went into his wine. The French visitors, he said, rarely knew. But the French also buy most of his wine. Why? Because they know where the vineyards are located.

What is importance in this little story is that it shows that there is more than one attitude toward the importance of grape variety among wine drinkers. Grapes come from somewhere, some people will say, and the grape variety is just one of many variables that come together to express that somewhere in a glass of wine.

Sure, grapes grow somewhere, others will say, but a particular grape variety grown here or there will taste enough alike that we will know we are drinking a particular variety. For that matter, cucumbers grow somewhere, too, and we don't spend a whole lot of time talking about how this or that cucumber expresses the somewhere it was grown. Do we?

We intend, for the most part, to skirt the debate over the relative importance of grape or place by presenting grape varieties in a less politically charged way. Our approach for each variety will be the same: a thick, but easy to follow template that follows the path of each variety through the regions in which it grows all the way into the mouth of the drinker. Along the way, we point out the many stopovers and variables that will affect the variety on its journey.



It should be clear that our approach moves from the largest unit to smallest, though that is not, of course, the only way to approach learning about grape varieties. Some of you may choose to read the section on each grape variety in the reverse, moving from the most intimate connection to the most distant. Backwards or forwards—it doesn't really matter. What is most important is that you combine your tasting experience with the information provided on each grape variety so that you establish a series of personal relationships—a network of friends with names like Chardonnay, Riesling, and Gamay.

On Mapping Grape Varieties

For each of the grape varieties we cover in this text, we provide a series of maps to help you locate the grape in the world. The 24 full-sized maps can be found at the back of the book. You will refer to the maps regularly, and so I encourage you to bind them separately.

The map style we chose for this text is simple, even humble. We chose this style for a reason, of course: it is important at for you to know the general growing areas of the major grape varieties without getting mired in too much detail. Busier maps with more regional labels, contour lines showing altitude, and so on, can come later, after you have mastered the outlines of the major wine producing areas.

You will likely find, as your interest in wine deepens, that you will find yourself hunting down increasingly specific maps of individual regions, even of individual vineyards. And that is a good thing.

On Chardonnay

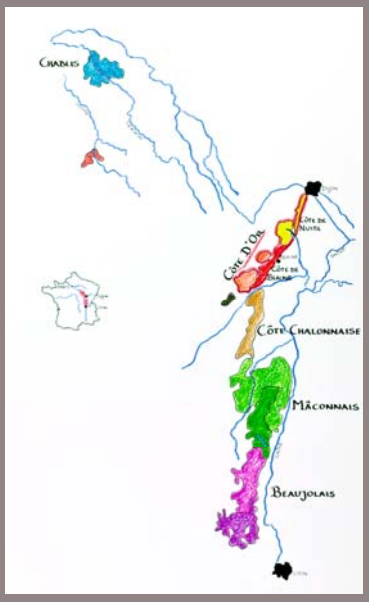
That Chardonnay is not the world's most planted white grape variety sometimes comes as a surprise to students of wine, particularly in the variety-obsessed countries of the English-speaking world. Even a quick glance at the shelves of the average North American wine shop should serve to confirm the variety's dominance among whites. But we should remember that wine is not the final destination for all grapes planted to make wine. Some find their way into grape spirits. The distinction of 'most planted' goes to the Spanish Airèn, mainstay of the brandy industry in that country.

Chardonnay is, however, the most widely planted white grape destined for quality wine production. Some have attributed the success of Chardonnay to what we might call the human love of ease. (This, by the way, does not only mean 'laziness,' but that is part of it.) It is easy to grow, easy to make, easy to drink—but the easiness of the variety should not be allowed to obscure the fact that it is also generally agreed that the grape is capable of making some of the world's finest, most distinctive wines when grown, vinified, and cellared with care.

So successful was Chardonnay, especially through the 1980s and into the 1990s that it generated an almost inevitable backlash in the form of the Anything but Chardonnay (ABC) movement. It would be a mistake to believe that this ever had anything to do with Chardonnay itself. Instead, it was directed at a certain style of the wine—one with generous oak, vanilla, and often a trace of sweetness. This style of Chardonnay generated all kinds of colorful chatter, from the coining of fantasy estates like Chateau 2′ x 4′ to tasters complaining of splinters in their tongues.

If there was a positive component to the Chardonnay backlash, it had to do with the growing realization that Chardonnay's market share actually threatened the diversity of the world's vineyard. And this encouraged much experimentation among drinkers with different grape varieties and wine styles—even different expressions of the villain Chardonnay itself. Chardonnay

Mapping Chardonnay



Map 3—Burgundy

See Also

Map 1—Wine Regions of France

Map 7—Champagne

Map 17: Wine Regions of North America

Map 20: Wine Regions of South America

Map 21: Wine Regions of South Africa

Map 23: Wine Regions of Australia

Map 24: Wine Regions of New Zealand

may still be the world's most popular white wine, but it no longer seems to be the only white wine.

In the World

Primary Growing Areas

Chardonnay's homeland is the vineyards of east-central France, especially the regions of Burgundy and Champagne. Though it can be found elsewhere in France, it is in the chalky, well-drained limestone soils of this large area where the grape has expressed itself most memorably.

Chardonnay shares the territory of central France with several other varieties, of course, but there are specific pockets where only it seems at home—Chablis, the south central villages of the Côte de Beaune and the southern tip of the Mâconnais. In between these places, there is still much good Chardonnay to be found, but perhaps nothing so distinguished as in these three areas.

The cool vineyards of Chablis, like those of Champagne, are composed of a particularly chalky limestone whose low fertility and high mineral levels tend to produce high acid, mineral-rich versions of Chardonnay. Further south, a trio of villages in the Côte de Beaune—Meursault, Puligny-Montrachet, and Chassagne-Montrachet—have established themselves as the centers for a particularly rich, oak barrel-fermented and powerful style capable of great longevity.

Further south still, at the southern tip of the Mâconnais where soils are similar to those in the Côte de Beaune, the village of Pouilly-Fuissé provides a welcoming style somewhere between the steeliness of Chablis and the richness of the wines of the Côte.

No other white grape has been as successful in colonizing the new world as Chardonnay. So successful has Chardonnay been that we are comfortable in asserting that for most wine drinkers in English-speaking countries, it is the heavily manipulated style emerging from California's Napa and Sonoma Counties and South Australia that provide examples of what Chardonnay tastes like. The finest wines from these areas, however, typically take as their technical model, the wines of Burgundy.

Secondary Growing Areas

It is, quite frankly, easier to say where Chardonnay doesn't grow than to list the places it does. This is, at least, a testament to the grape's adaptability and popularity, at worst a statement on human laziness.

Chardonnay can be found in several other regions of France, sometimes for quality wine, but often for everyday table wines for the export market. Elsewhere in Europe, the grape is planted in Italy and much of Eastern Europe, with smaller plantings in Austria, Germany, Switzerland, Spain, and Portugal.

In the new world, Chardonnay is widely planted in South America, Australia, New Zealand, the United States and Canada.

In the Vineyard

Growers have a particular fondness for Chardonnay. This feeling has much to do with the relative lack of maintenance the grape requires compared to the relatively generous return it typically provides. There may be grapes easier to grow and grapes more valuable by liter of juice, but

Chardonnay often looks best on the balance sheet. Chardonnay, with its large, often brown-spotted berries, crops to reliably moderate—though not high—levels, and its natural vigor and health, say growers, can make it a pleasure to grow.

Chardonnay is highly adaptable both to different soils and to different climates, and this has done much to contribute to its wide geographic penetration. This is not to say, however, that Chardonnay can (or should) be grown just anywhere. Though it is adaptable to different climates, it is also an early budding variety and so is susceptible to spring frosts in marginal climates. It may also, given poor weather during its early flowering or fruit set, suffer the twin maladies of *coulure* and *millerandage*. Though it is tolerant of most soils, it does not perform well in wet environments. Moist soils, especially when combined with rainy or humid conditions, can stimulate rot, a considerable danger given Chardonnay's thin skins. Though it is generally hardy and disease resistant, the vine is susceptible to powdery mildew.

None of these issues is of much interest to the average Chardonnay drinker, of course. True, they can affect crop levels, and crop levels can affect price, but the relative ease with which the grape is grown ensures a healthy supply of variously priced Chardonnay on store shelves. Of more interest to drinkers is the variety's tendency to over-ripen in warm climates. Unlike, for example, Riesling, Chardonnay can suffer drastic drops in acidity levels in the latter stages of ripening. If harvest schedules are not carefully managed for this early-ripening variety, the result may be juice which is frankly flat of taste.

From a grower's perspective, this, too, is far from a deterrent. Acid levels can be fixed in the winery in most regions and those low acids are anyway testament to the high sugar levels Chardonnay typically reaches. After the total volume of juice produced, sugar levels are often second on the priority list of many grape farmers. In some regions, for example—and this is especially true of cool climate regions—growers are paid premiums for reaching certain sugar levels.

In the Winery

If growers are fond of Chardonnay, winemakers are at least equally so, but for entirely different reasons. As grapes go, Chardonnay is one of the most easily manipulated, which allows winemakers to ensure that their creative signature is very much evident. In a time where conventional wisdom urges a sort of hands-offism in the winery to allow the juice to express the place from which it comes, access to Chardonnay juice can give winemakers a chance to play.

Fresh Chardonnay juice is neither aggressively aromatic nor complicated in its structure. It is, instead, anywhere from neutral to apple scented and is typically blessed with relatively high sugar levels and moderate acidity.

Where structure is an issue—in cool or hot vintages, or when the grapes derive from regions which test the limits of Chardonnay's tolerance of hot or cold—it can usually be corrected. Cool climate Chardonnay may have sugar added before fermentation to increase potential alcohol. Warm climate Chardonnay is often acidified and, where it is permitted, it may also be subjected to dealcoholization.

Chardonnay might appear to be the grape for which the old decadent saying, 'everything is permitted' applies. But this is not to say that there are not typical approaches to the grape in the

winery. For simplicity, we might reduce the number of approaches to two: maximum manipulation and minimal intervention. You should understand, however, that winemakers may make partial use of techniques associated with both of the approaches.

Winemakers looking to put their signature on a bottle of wine may choose a set of techniques which will have considerable influence on the finished wine. These techniques include skin contact (for tropical fruit notes), barrel fermentation and/or maturation (to bring out vanilla, nut, and toast aromas), MLF (to soften the wine's acidity and add dairy scents), and *battonage* (stirring of the wine on its lees to increase yeasty/bready aromas).

Winemakers looking to let the juice speak for itself avoid such techniques and opt for the path of least resistance—pressing, fermentation at cool temperatures in inert vessels to preserve fruity aromas, and early bottling to retain freshness.

In the Glass

Not surprisingly in a grape variety grown in so many different soils and climates and subjected to diverse vinification techniques, Chardonnay can display a Sybil-like character in the glass.

Fruit aromas associated with Chardonnay include apple (sometimes baked or roasted apple), pear, lemon, peach, and occasionally tropical fruits such as mango and pineapple. Wines which have undergone MLF typically display yeasty, buttery aromas, and those matured or fermented in contact with wood may display vanilla, toast, smoke and caramelized aromas of honey and butterscotch. In maturity, a high quality Chardonnay will develop a pleasingly nutty bouquet of almond and hazelnut.

In the Mouth

Chardonnay from cool climates where wood treatments have been avoided can be one of the world's most refreshing wines—zesty, medium to high in acidity with medium body and alcohol and subtle apple and pear aromas.

From warmer climates, however, Chardonnay can be very substantial on the palate with low to medium acidity, medium to high alcohol and a mouthfeel that is typically described as 'round' in the best examples, or 'fat' where the wine leaves an oily, out-of-balance impression on the drinker.

On Sauvignon Blanc

Of all the grapes benefiting from drinker fatigue with the class of 'wooden' Chardonnay during the 1980s, perhaps none was as lucky as Sauvignon Blanc. Few grapes are as difficult to confuse with Chardonnay and this fact added considerable capital into Sauvignon Blanc's accounts with drinkers.

In the World

Primary Growing Areas

Given the extraordinary success of Sauvignon Blanc in New Zealand, it sometimes comes as a surprise to novice drinkers that the grape is not native to that country. Nor, for that matter, is any other grape variety. Sauvignon Blanc's true homeland is southwestern France, particularly in the vineyards of Bordeaux. Though we increasingly see the grape appearing as a varietal wine in its home region, it is traditionally a component, along with Semillon and Muscadelle, in the dry and sweet wines of the Graves, Entre-Deux-Mers, Sauternes, and other nearby appellations.

Many, however, would argue that even within France, Sauvignon Blanc shines most brightly outside of its home region, in the vineyards of the upper Loire Valley. The upper Loire—comprising Touraine and the Central Vineyard—provides ideal growing conditions for Sauvignon Blanc to produce varietal wines of great character. The Central Vineyard appellations of Sancerre, Pouilly-Fumé, Quincy, and Menetou-Salon, as well as several others, have developed global reputations for producing a particularly zesty, and occasionally aggressively aromatic style of Sauvignon Blanc.

As I hinted earlier, New Zealand has also achieved great success with the grape. Though the ascension of the grape is recent in New Zealand's premier Sauvignon region of Marlborough—the first successful plantings were in the early 1970s—New Zealand already has more land devoted to the variety than either the Loire or Bordeaux. It is difficult to generalize about the still-evolving New Zealand style, but in the most typical examples Sauvignon

Mapping Sauvignon Blanc

Map 24: Wine Regions of New Zealand

See Also

Map 1: Wine Regions of France

Map 4: Loire River Valley

Map 3: Bordeaux

Map 8: Wine Regions of Italy

Map 11: Wine Regions of Spain

Map 17: Wine Regions of North America

Map 21: Wine Regions of South Africa

Map 23: Wine Regions of Australia

Blanc's fruit character is emphasized over its nervy, vegetal character.

Elsewhere in the new world, Sauvignon Blanc has evolved to be a popular, though occasionally chameleon-like grape in California. Early in its California career, the vegetal components of the grape were seen to be a potential threat to the variety's acceptance by American drinkers. Various forms of manipulation in the vineyard and winery were designed to reduce or veil the *sauvage* (or 'wild') qualities of the grape. So deep was the marketing department's penetration into the grape's identity that it even found itself renamed as 'Fumé Blanc.' The number of wines associated with this term, however, has dwindled in recent years and many California producers are rediscovering Sauvignon Blanc and moving toward a style more similar to that of New Zealand.

Secondary Growing Areas

Sauvignon Blanc is widely planted elsewhere in both Europe and the new world. European regions which are able to provide the cool climate Sauvignon Blanc enjoys, and which have already demonstrated success with the grape include Spain's Rueda and the north eastern Italian province of Friuli-Venezia Giulia.

In the new world, Australia has had mixed success with the variety, as have Chile and, to a lesser extent, Canada's Niagara Peninsula.

In the Vineyard

Growing Sauvignon Blanc can present challenges to farmers. The grape's tight bunches and tender skins make it particularly susceptible to various forms of mildew and rot—particularly powdery mildew and gray rot. When provided with a long growing season, however, the rot attacking Sauvignon Blanc can be of the noble variety, which helps Sauvignon Blanc contribute to some of the world's most celebrated sweet wines.

A late budder and early ripener, Sauvignon Blanc is, in most respects, ideal for cool climate growing regions. But the grape is also extremely vigorous and if the canopy of shoots and leaves is not effectively managed, it can shade the grape bunches to such a degree that they do not receive sufficient sunlight, which is essential for flavor development in the berries. Sauvignon Blanc which has not received sufficient sunshine can be exceedingly vegetal of flavor.

Given Sauvignon Blanc's propensity for both abundant green growth and rot, it is not surprising that the most successful examples have come from relatively infertile, well-drained soil. The chalky and flinty (or *silex*) limestones of the upper Loire and the gravels of Bordeaux serve naturally to limit the grape's vigor. But Sauvignon Blanc is also able, given appropriate management of its canopy, to produce fine wines in the comparatively fertile soils of New Zealand and California.

For that matter, even some warmer climate regions, given both canopy and harvest management, have managed to produce some distinguished Sauvignon Blanc.

In the Winery

For a grape with such a distinctive character, Sauvignon Blanc is surprisingly versatile in the winery. It must be said, however, that the results of some of the experimentation to which the grape has been subjected have received mixed reviews and found only small audiences.

The most familiar and classic expressions of Sauvignon Blanc emphasize the natural character of the grape. They generally avoid the addition of flavor components associated with various wine making tricks: oak barrel fermentation and maturation, oxidation, the conversion of malic acid to lactic acid. Cool, stainless steel fermentation and early bottling is the dominant approach to making wines from Sauvignon Blanc.

However, as I mentioned earlier, there have been attempts from various producers to reduce the salad of flavors that the grape provides through just the forms of manipulation discounted above. These techniques describe the early career of Sauvignon Blanc in California and, to a lesser extent, elsewhere in the world, especially during the 1980s.

Even though it is most common as a single varietal wine, it would be a mistake to believe that Sauvignon Blanc is friendless among grapes, incapable of blending with others. In its homeland and elsewhere, Sauvignon Blanc's naturally high acidity can provide needed to structure to blends with grapes such as Semillon and Chardonnay.

In the Glass

The distinctive and easy to recognize complex of aromas typical to Sauvignon Blanc make it a blessed inclusion in a blind tasting . Of all white grapes, students often develop an ability to recognize its tell-tale aromas first.

This is not necessarily the case for all Sauvignon Blanc, of course, particularly those which have had their flavors masked through manipulation in the winery. The diversity of Sauvignon Blanc can also stem from different approaches to the grape in the vineyard. Less ripe fruit emphasizes the vegetal quality of the variety leading the wines to display green aromas of cut grass, asparagus, green pepper, green beans and canned peas. Though it never entirely abandons its vegetal side, riper fruit can provide fruity aromas of honeydew melon, grapefruit, gooseberry, passion fruit, kiwi, green fig and lemon or lime zest.

In extreme cases, under ripe Sauvignon Blanc can provide aromas often likened to armpit sweat, cat's pee (or black currant flower, as is currently more fashionable), wet dog, as well as mineral scents reminiscent of lighter flint.

In color, Sauvignon Blanc tends to a pale yellow, often with greenish tinges, especially in fruit sourced from cool climates. Wood maturation and/or a warm climate can deepen Sauvignon Blanc's color considerably.

In the Mouth

If Sauvignon Blanc's unique aromas are insufficient to identify the grape in a blind situation, the naturally high acidity of the grape is usually enough additional help. Rarely full of body on its own, Sauvignon Blanc is typically light to medium bodied and refreshingly crisp on the palate.

On Food and Wine

Pairing the two pleasures of food and wine should be a source of delight, not a source of anxiety. But for many reasons, food and wine pairing is a hot topic, one visited in books, magazines, television programs, podcasts and blogs. It seems a truism in our media-saturated world that the hotter the topic, the more likely we are to receive conflicting information. The more we hear, see and read, the less confident we are in what we know.

Our intention in this short section is to provide a basic outline of the fundamental principles of food and wine pairing. The nice thing about this topic, however, is that the best way to learn about it is to do it. Most of us drink wine with our meals, but few of us take the time to contemplate the interactions of our food and wine. We might know that a particular wine tastes lovely (or yukky) with this or that dish, but we don't often ask ourselves why this is so. Hopefully this section will provide you with some of the reasons as to why things work or why they don't.

Below, we have provided a series of observations on which you should try to build as you eat and drink in the future. They are, in essence, a series of worthwhile rules of thumb to observe to avoid truly disastrous meals. And getting at those rules is quite simple—we only have to go back to the basic components of wine and observe how they interact with the various components of food. What you should notice, as well, is that the components we focus on are the structuring elements in wine—the sugar, the acid, the tannin, the alcohol. Flavor is not entirely irrelevant, of course, but it is structure which forms the basis of any wine and food match.

On Food and Wine Matching Principles

The entries below are designed to serve as an introduction and guide to some of the primary issues in food and wine matching.

Quality and Complexity

This may seem an odd place to begin our journey, but we start here because of all the issues involved in wine and food pairing, this is the most often overlooked—especially in some of the world's finest restaurants. Put simply, there can be only one star at a meal—either the food or the wine. This does not mean that the level of quality of the food and the wine can be different (they should be equal); it does mean, however, that their levels of complexity should not be equal. A particularly complex, mature wine is best served with a simple dish, so that the two do not compete for attention. Simple young wines may be served with particularly involved, complex dishes.

- Complex wine, simple food. Simple wine, complex food. The quality of the food ingredients should match the quality level of the wine.

Weight

Fatty and skinny went to bed. Fatty rolled over and skinny was dead. This little schoolyard rhyme—bordering on unspeakable in our day—contains a kernel of truth when it comes to pairing food and wine. For even though a big person and a little person may be able to make a life together, heavy and light are rarely successful companions at the dinner table. The primary issue here, of course, is balance.

- Light food pairs best with light bodied wine. Heavy food pairs best with full bodied wine.

Intensity

Most agree that intensity of aromatics can, on occasion, act as a substitute for weight. A light bodied Riesling, for example, can occasionally be paired with a weighty dish such as roast goose or duck.

- Intensity can act as a substitute for weight on some occasions.

Acidity

Some regard acidity as the most important consideration after weight, and sometimes before weight. Acid functions, in both wine and food, as a counterbalance to sweetness, and to fat: where both sweetness and fat coat and tire the palate, acid refreshes and cleans. It is, therefore, an essential component in wines matched to rich dishes such as those based on butter or cream, deep-fried foods, oily fish and buttery shellfish. Acid also refreshes the palate when consuming high salt foods such as oysters.

Acidity can function as well as a mirroring taste for relatively high acid foods such as tomato-based dishes, and dishes with lemon and capers. The acid in the wine actually makes the acidic dish seem less acidic.

- Acid refreshes the palate when paired with dishes high in fat, sweetness, and salt. Acid in wine provides balance to dishes themselves high in acid.

Saltiness

Though we rarely encounter saltiness in wine, we do, of course see it often in food. The goal in pairing wine with salty foods is typically to find ways to reduce our perception of it. For this reason, wines with sweetness or acidity (or both) function best as complements to salty dishes.

- Wines with sweetness, acidity, or both sweetness and acidity pair best with salty dishes.

Sweetness

Sweetness in food can often present challenges when choosing wine, which must be at least as sweet as the food with which it will be paired. Sweetness in wine, however, can lead to a certain versatility. Sweetness can mask mild spiciness as well as salt.

- Sweetness levels in wine must be at least equal to that of food. Sweetness in wine can act as a foil for saltiness and spice in food.

Tannin and Bitterness

Tannin, the substance which produces a drying sensation on the upper cheeks and gums, can be moderated by judicious food choices. Ideally, tannic wines are matched with foods high in fat and protein, because protein binds with tannin and reduces the drying sensation provided by the tannins. Tannin is also bitter, and so it is common to pair tannic wines with grilled or charred foods. Salt can also reduce the perception of bitterness in food and wine.

- Tannic wines are best paired with chewy, protein and fat rich foods. Tannic red wines can pair well with bitter foods, such as meats which have been grilled.

Alcohol

All wine contains alcohol, but only a select few have so much alcohol that they provide a burning sensation in the throat when they are consumed. However, spicy food accentuates the perception of alcohol, so only very low alcohol wines (or beer) are appropriately served with spicy foods.

- Spice in food accentuates the perception of alcohol in wine.

On Classical Matching

Before the industrial revolution of the 19th century, most human beings lived and died within about 5 miles of their birthplace. If they were lucky enough to live in a temperate zone capable of producing wine, they drank the wine that was produced near to their homes. And they ate the produce that was grown and the livestock that was reared in the same general vicinity. Their wine, their food, and their soul all came from the same place, and influenced each other in their evolution and development.

This kind of relationship informs what we sometimes call 'Classical' or 'Regional' food and wine matches. Proximity brings food and wine together. But what we find when we look at these classical matches is that they also normally obey the kind of basic food and wine matching principles we outlined above.

We can take, for example, lamb and the red wines of Bordeaux' Left Bank. These wines have traditionally been paired with lamb—especially *pre-salé* lamb which has grazed and been raised in the salt marshes and salt meadows of the area. This classical match observes basic wine and food matching principles—the relationships between tannin and protein, acid and fat.

In order to develop your food and wine pairing skills over the coming weeks, try to analyze the foods you eat and the wines you drink, breaking them down into their component parts.

On Cabernet Sauvignon

Cabernet Sauvignon is arguably the most important of the international black grapes. Though Merlot has recently taken the yellow jersey and become the most widely planted of black grapes, few would disagree with the observation that Cabernet Sauvignon produces greater volumes of coveted and collectible wine.

This is perhaps surprising given Cabernet Sauvignon's relatively humble origins and relatively recent arrival in the vineyards of the world. Offspring of Sauvignon Blanc and Cabernet Franc (according to DNA testing) and ascendant only since the latter part of the 18th century, Cabernet Sauvignon's conquest of the vineyards of the world has been impressively quick.

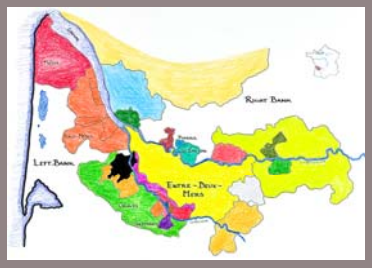
In the World

Primary Growing Areas

As with some of the other major international varieties, it would almost be easier to list the places where Cabernet Sauvignon doesn't grow than to describe all of the regions in which it has found a home. Nevertheless, the grape does have an identifiable homeland, and so it is best to start there.

Cabernet Sauvignon is native to south western France's Bordeaux region, and it is there that it produces some of its most sought after and memorable wines. Though the variety can be found all over France's south west, it is in particular the vineyards of the Médoc (the left bank of the Gironde estuary) which have hosted Cabernet Sauvignon. The temperate climate of the region combined with stony, well-drained soil, allows Cabernet Sauvignon to ripen in most vintages. Even more specifically, a quartet of small, riverside communes in the southern Médoc (or Haut-Médoc, as the southern section is known) produce some of the world's most coveted wines. The communes of Pauillac, St.-Estephe, St.-Julien and Margaux are the homes of most of France's most famous Chateaux. Further south, the commune of Pessac-Léognan in the Graves district has also established a fine reputation for Cabernet Sauvignon.

Mapping Cabernet Sauvignon



Map 2: Bordeaux

See Also

Map 1: Wine Regions of France

Map 8: Wine Regions of Italy

Map 9: Tuscany

Map 11: Wine Regions of Spain

Map 16: Wine Regions of China

Map 18: West Coast North American Regions

Map 19: California's North Coast

Map 20: Wine Regions of South America

Map 23: Wine Regions of Australia

In the new world, Cabernet Sauvignon occupies positions of prominence in most of the regions warm enough to support it. California's north coast, however, has shown a particular affinity for Cabernet Sauvignon, especially within the Napa Valley. This small area has managed to become the poster child for American wine in general and Cabernet Sauvignon in particular. In small growing communities such as Rutherford and Oakville, Cabernet Sauvignon reaches heady levels of ripeness and produce wines with almost shocking levels of fruit flavor.

Another new world region has also developed a reputation for fine Cabernet Sauvignon: the South Australian region of Coonawarra. This region, found inland and blessed with a moderate climate which allows Cabernet Sauvignon both to ripen and to develop desirable flavors, has produced long-lived and elegant expressions of the variety.

Secondary Growing Areas

Though Cabernet Sauvignon is found in other French regions of the west and south west, we need to leave France to find Cabernet Sauvignon shining almost as brightly as it does in Bordeaux. Italy and Spain, for example, have both found success with the variety, though only in certain small, high quality regions. In Spain's Catalonian region of Penedès, Cabernet Sauvignon has produced a handful of fine wines. The same is true further to the west in the important, high quality region of Ribera del Duero. Italy's Tuscan coast has also made small-production, often excellent wines from the grape, most famously in the region of Bolgheri.

Cabernet Sauvignon is widely planted elsewhere in Europe and North Africa as well and shows up either as a varietal wine or a blending component in countries such as Greece, Lebanon, Romania and Bulgaria (where it is the most planted variety).

In the new world, Cabernet Sauvignon is of enormous importance in countries which, for various reasons, have only recently emerged (or re-emerged) as players in the global wine market. Cabernet Sauvignon is the most widely planted black grape in South Africa, and is of enormous importance to the wine industry in Chile's Central Valley.

Australia has had great success with Cabernet Sauvignon beyond the confines of celebrated Coonawarra as well. Other South Australian regions such as Clare Valley, McLaren Vale, and Barossa have all produced fine examples, as has the Western Australian region of Margaret River.

In the United States, Cabernet Sauvignon is important in the California north coast region of Sonoma County. In the hot interior of the state, Cabernet Sauvignon is widely grown for inexpensive varietal wine. The grape can be found in several other American states as well, but after California it is perhaps most successful in Washington State.

Cabernet Sauvignon, because of its broad consumer appeal and general hardiness in the vineyard, has also become attractive to emerging grape growing nations. It is, for example, the most widely planted wine grape in China where it has already produced intriguing wines.

In the Vineyard

One of the reasons for the extraordinary success of Cabernet Sauvignon in the vineyards of the world is the relative ease with which it is grown. The tough wood of the vine itself allows for easy mechanical harvesting and good resistance to extremes of heat and cold. The generally good

disease resistance the vine shows gives growers a certain comfort. Though generally resistant to most diseases, Cabernet Sauvignon can be susceptible to powdery mildew in humid conditions.

Part of the reason for Cabernet Sauvignon's impressive disease resistance is the thickness of the skins on the berries. Small and blue-black in color, Cabernet Sauvignon is notorious for the small quantities of juice each berry manages to produce.

Cabernet Sauvignon is also quite adaptable to different soils. The soils in which it has historically produced its finest wines—the warm, well-drained gravels of Bordeaux and the Tuscan coast, the iron rich loam over limestone (or 'Terra Rossa') found in Coonawarra, and the variable alluvium of the Napa Valley—are all superficially different. What they all share, however, is good drainage and good heat retention.

Where Cabernet Sauvignon is less inclined to compromise, however, is in the climates it finds appealing. The variety is both late budding and late ripening and so requires a long growing season, preferably one which allows for slow ripening. Cabernet Sauvignon which doesn't ripen fully can be unpleasantly vegetal in flavor, and the lateness of the grape has encouraged the practice of blending the variety with earlier ripeners as insurance against a vegetal vintage.

In the Winery

The durability Cabernet Sauvignon displays in the vineyard carries over into the winery. The high skin to juice ratio of Cabernet Sauvignon musts protects the variety better than most against the negative effects of oxidation. This allows for long maceration times to extract great quantities of color, flavor, and tannin.

When fermentation is complete, Cabernet Sauvignon continues its durable ways. More than most other varieties, Cabernet Sauvignon is capable of spending extended periods of time in small oak barrels without oxidizing into decrepitude or being overwhelmed by the flavors of the wood. For that matter, few varieties share Cabernet Sauvignon's natural affinity for the flavors provided by new oak barrels. The vanilla, cedar and spice flavors provided by the wood represent particularly common and desirable aromas in some of the world's finest expressions of the variety—so much so that many tasters associate these aromas with the variety itself.

Cabernet Sauvignon is also a blending variety of great importance. Often it is the lead player as, for example, in the wines of the Left Bank where it often finds partners in Merlot and Cabernet Franc, both of which offer fruitiness to fill in the occasionally hollow middle of pure Cabernet Sauvignon. But it is also often a supporting player giving structure, color, and fruitiness to many different varieties—Tempranillo in Spain, Sangiovese in Italy, Shiraz in Australia.

Cabernet Sauvignon's durability can carry on into the bottle and some of the finest are capable of evolving for decades.

In the Glass

Even when blended with other varieties, Cabernet Sauvignon's distinct aromas seem to endure. The fruit aromas associated with the variety are almost invariably black: black cherry, blackberry and above all, black currant (cassis). When these fruits are particularly concentrated, some liken their

aromas to printer's ink. These fruit aromas are often accompanied by pleasing vegetal aromas like mint and eucalyptus, and by less pleasing aromas of bell peppers. Wines aged in new oak can have smoky, toasty, tobacco and cigar box smells, particularly when the wine has passed a few years in age.

Cabernet Sauvignon is typically dark in color. Opaque purples and deep rubies dominate the color spectrum. With time, these colors evolve to garnet.

In the Mouth

Though Eastern Europe has produced some interesting sweet expressions of Cabernet Sauvignon, most are dry. In structure, the wine tends to the medium to full range for every element—tannin, acidity, body and alcohol.

On Pinot Noir

No other grape variety has inspired more rhetorical flights of fancy and mythologizing than Pinot Noir. There are many reasons for this, of course, but perhaps the primary one is the frank nudity of the variety in the glass. The adjectives typically applied to it—'transparent' and 'sensual' are only two members of the legion—tend to underline the variety's obviousness on the one hand and its resistance to translation into words on the other.

In the World

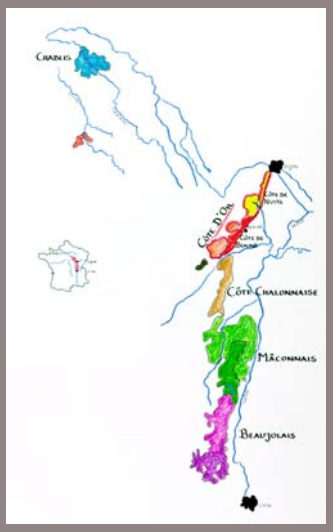
Primary Growing Areas

Pinot Noir is the pride of the French. Native to eastern France, the grape is widely planted in two important regions: Burgundy and Champagne. In these regions, the combination of soil, topography, climate, and culture is responsible for producing highly respected, but enormously diverse expressions of the variety. In Burgundy, most drinkers would agree that the grape achieves its highest levels of quality in a handful of small winemaking villages along the escarpment known as the Côte d'Or. In villages such as Vosne-Romanée, Chambolle-Musigny, and Gevrey-Chambertin, certain well positioned and carefully tended vineyards produce some of the world's most respected and sought-after expressions of Pinot Noir.

In the new world, Pinot Noir has become the grape of choice in several regions which offer climatic conditions similar to those of eastern France—relatively cool climates with growing seasons too short to support later ripening varieties like Cabernet Sauvignon. In the United States, Pinot Noir is the most planted variety in Oregon, where it has found a home in several pockets of the large Willamette Valley. The variety is also widely planted in the cooler regions of California's north and central coasts. Regions such as the Russian River Valley, Carneros, and the Santa Lucia Highlands, all of which benefit from the cooling influence of the Pacific Ocean, have established reputations for high quality expressions of the grape.

Secondary Growing Areas

Mapping Pinot Noir



Map 3—Burgundy

See Also

Map 1—Wine Regions of France

Map 4: Loire River Valley

Map 7—Champagne

Map 18: West Coast North American Regions

Map 19: California's North Coast

Map 21: Wine Regions of South Africa

Map 23: Wine Regions of Australia

Map 24: Wine Regions of New Zealand

In France, Pinot Noir is the only permitted black grape for quality wine in the cool climate region of Alsace. Though its presence has increased there, Alsatian Pinot Noir remains something of a curiosity—a red wine from a region best known for high quality white wine. Elsewhere in France, the variety is also important in regions surrounding Burgundy and Champagne—the Jura, to the east of Burgundy, and the Sancerre appellation in the upper Loire Valley.

The global fascination with Pinot Noir has encouraged experimentation and increased plantings in several other European countries. Pinot Noir (as Spätburgunder) has emerged as Germany's most important black grape and it is also increasingly significant in Austria and Switzerland. Northern Italy and Spain also make use of the variety for both still and sparkling wine.

In North America, there are modest quantities of Pinot Noir planted beyond Oregon and California. Enterprising growers in most US states have experimented with the variety and it is also a major part of the wine industry in central Canada's Ontario province and in the Pacific northwestern province of British Columbia.

Though South America's experience with Pinot Noir is limited, interest in the grape is high and plantings increasing. In Chile, where growers over the last twenty years have sought out cooler climates in order to diversify the nation's grape mix, experimental plantings of Pinot Noir have been quite successful. The same may be said for South Africa which, since the end of apartheid, has had access to Pinot Noir nursery material and has looked for regions cool enough for the variety to thrive. The result has been a trickle of high quality Pinot Noir from new, cool climate regions such as the ocean-influenced region of Walker Bay.

Australia has had some success with the variety in cooler regions such as Victoria's Yarra Valley and the island of Tasmania. But it is New Zealand which has been the most successful southern hemisphere producer of Pinot Noir. The South Island region of Otago has perhaps generated the greatest critical buzz for high quality and high prices, but the variety is also important in other South Island regions—Marlborough, Canterbury, Nelson. On New Zealand's North Island, the region of Martinborough has also produced excellent expressions of the grape.

In the Vineyard

A healthy chunk of Pinot Noir's mythology emerges from the mouths of growers or, perhaps more often, armchair viticulturalists. The standard story of the grape is that it is notoriously difficult to grow. There is, of course, a certain amount of historical truth in this, though at least one of the reasons for the increased plantings of Pinot Noir over the past couple of decades has been the arrival of much more reliable nursery material. This material, combined with more sophisticated viticultural techniques designed to maximize the grape's potential, has done much to soften Pinot Noir's reputation for difficulty.

Pinot Noir's basic features are easy to summarize. It is a variety both early budding and early ripening making it susceptible to both frost and *coulure* in the cool climate regions in which it has historically been most successful. Its relatively thin skins also make it susceptible to gray rot—a particular problem when rain falls heavily in the weeks leading up to harvest. Though Pinot Noir is an early ripener, it has typically produced poor wines in warm climates where it is effectively rushed toward maturity. These climates remove much of the risk associated with the variety, but also,

unfortunately, remove much of the variety's charm. Pinot Noir likes to take its time ripening, no matter the climatic dangers.

The soils in which Pinot Noir has traditionally excelled have been anchored by limestone—Burgundy, Champagne—but it would be incorrect to state that the variety requires such calcium-rich soils in order to produce quality wine. The owner's manual for Pinot Noir has added several other acceptable soil types in recent years and may add more as new regions experiment with the variety. What do seem important to the variety as far as soil is concerned are the twin imperatives of drainage and depth.

Where Pinot Noir gets complicated, obscene, romantic, fickle, and unreliable (all words commonly applied to the grape) is in its penchant for genetic mutation. Pinot Noir is a particularly old variety—and a survivor— and this can introduce a degree of instability into the grape's genetic code. If, for example, a vine finds that it is not getting enough heat or sun to ripen its red berries, it may begin to produce white berries. This has led to successful mutations—Pinot Gris and, by extension, Pinot Blanc—but it has also led to the existence of many different versions (or clones) of the variety.

These different clones have sometimes small and sometimes enormous differences from each other. Some, for example, tend to produce shoots which grow upright, making for less work for farmers in managing the vines during the growing season. Other clones tend to have a trailing growth habit, and require more attention from farmers. This is only one example of how clonal variation affects the variety. The truth is that just about every feature of the grape expresses itself differently in different clones—skin thickness, color, typical sugar levels, disease resistance, typical yield. All of this has given rise to a veritable Pinot-Noir-clone-industry which is so intriguing that it is not unusual to hear growers boasting about the particular clones they grow or to hear consumers demanding to know which clones were used to produce the wines they are tasting.

In the Winery

Pinot Noir presents winemakers with just as many challenges as it presents growers. Once again, however, modern advances in growing and making wine have diminished the number of potential heartbreaks associated with the variety.

What seems not to have diminished, even in our modernity, is the widespread attitude among winemakers that Pinot Noir is a delicate and demanding variety. And though Pinot Noir is made according to standard red wine vinification techniques, winemakers tend to opt for the softer side of standard vinification, essentially trying to do less in order to preserve the unique flavors of the grape.

In the cool climates in which it is traditionally grown, Pinot Noir is often chaptalized to increase alcohol, but beyond that, most producers observe a hands-off approach and avoid significant manipulation of the must.

Many producers also perform a pre-fermentation maceration or cold soak to extract color and tannin from this lightly pigmented and moderately tannic variety. It is often observed that this is not so much a form of manipulation as a nod toward traditional approaches to the variety. In the days before central heating and temperature controlled tanks, it would have been natural for fermentation to take a few days to start in the cool autumn temperatures of Pinot Noir's native region.

Fermentation is traditionally performed in open-topped fermenters with the fermenting wine gently punched down to maintain the integrity of the fermentation. Maturation, for all but the finest and most concentrated expressions of the variety, was traditionally performed in seasoned (or 'used') oak barrels. Only the finest wines were believed to possess the structure and the density of flavor necessary to benefit from maturation in new oak barrels.

Of all of the traditions encountered by makers of Pinot Noir, perhaps none has been rejected more often in recent years than the preference for seasoned barrels for maturation. As the quality of fruit coming out of the vineyard continues to improve, so does the preference increase among winemakers for new oak barrels.

The supposed delicacy of Pinot Noir has also led to the widespread belief that the variety is best if bottled directly after maturation in the barrel—without the prophylactic steps of fining and filtration. This is, perhaps, a topic for another level of study, but you should be aware that Pinot Noir, more than most other varieties, needs to be stored correctly if its maturation in the bottle is to proceed properly.

Though Pinot Noir is best known as a single variety wine, it is not impossible to find it blended with other grapes. Most Champagne, for example, is blended, but there are also red wines where the grape is found partnered with other varieties. Both France's Burgundy region and several western Swiss regions have traditions of blending Pinot Noir with Gamay. The wines produced can be enjoyable, and most are modestly priced and designed for early consumption.

In the Glass

Not surprisingly, the current faddishness of Pinot Noir, combined with new expressions of the variety from growing regions not traditionally associated with the variety, has complicated to some extent the flavor profile of the grape.

Classic expressions of the variety, however, all share certain characteristics which make Pinot Noir one of the most aromatically exciting of the world's black grapes. Aromas associated with the variety tend to come from the red fruit category—strawberry, raspberry, cherry. In warmer climates or vintages, these aromas may take on a confected quality—strawberry jam, for example—and be augmented by aromas of plum or bing cherry.

Pinot Noir also has an intriguing earthy component to it as well, especially common in (but not exclusive to), French expressions of the variety. Aromas of leather, game, mushrooms, bed-sheets and beets are common. With maturity, these earthy/erotic notes often increase in intensity. The popular expression 'barnyard' is the rather puritanical English translation of what the French describe as '*merde de lapin*' or rabbit poop. In some fine examples, tasters also note floral aromas, especially scents of violets.

The intensity of Pinot Noir aromas can vary considerably, but the best versions tend to medium to high levels. Particularly young and recently bottled Pinot Noir, however, may be very shy aromatically.

Pinot Noir is typically a lightly pigmented variety and has, until recently, usually appeared as a medium to pale ruby in the glass. New clones and modern color extraction techniques however,

have led to a general darkening of many wines. Modern Pinot Noir, especially from the new world, can have a deep ruby hue.

In the Mouth

For all of its aromatic complexity and intensity, Pinot Noir tends to subtlety, even modesty on the palate. Moderately intense, modest of tannin, medium to high in acidity, and medium bodied, Pinot Noir can produce charming and versatile wines with broad food pairing possibilities.

On the Art of Service

On Being a Sommelier

Studies conducted with frequent restaurant diners are consistent on one point: while they are generally inclined to forgive mediocre food, they are not inclined to forgive poor service. The importance guests place on service simply underlines the importance of the sommelier position in the hospitality industry.

The essential role of the sommelier in the restaurant is the management of the beverage program. Though traditionally the sommelier focused his or her attention on wine, modern sommeliers may also deal with other drinks—spirits, beer, water, coffee, tea. Duties associated with the position include staff training, list design and maintenance, purchase and inventory of products and, of course, the sale and service of beverages.

In all of this, the sommelier should have only one goal: meeting and preferably exceeding the expectations of guests so that their dining experiences are pleasurable.

On Using the Sommelier

Restaurant guests today should not hesitate to request the assistance of a sommelier. For a sommelier to be effective, all that is really needed is a clear line of communication buoyed up by trust. Communication is, after all, the basis of any sound relationship.

There are, in other words, things to tell your sommelier:

- Your budget. (This is almost without exception the most potentially embarrassing moment in any dining experience. But there are several ways to do this without embarrassing yourself or your guests. A price range for wine can be established when the reservation is made, or, inside the restaurant, a well-placed finger on the wine list asking for "something in this range" is always effective.)
- What wine or wine style you typically enjoy and whether or not you would like to diverge from your usual pattern.
- What you intend to have for dinner (This can work in a couple of different ways: some like to order wine first and then discuss appropriate food matches; some like to order food first and then discuss possible wine matches. Most, however, prefer to eat what they like and drink what they like irrespective of food and wine matching principles.)
- The occasion for your visit if it is special.
- If your group is large, how much you will likely consume.

On the Mechanics of Service

The sommelier's most important feature is his or her attitude of hospitality. But beyond that, he or she must also be skilled in the basic manual skills associated with wine service.

Serving wine properly means developing dexterity with the most important sommelier tool: the corkscrew. There are many different styles of corkscrew available, from the most basic to the most extravagant, expensive, and stunningly beautiful *objects d'art*. But the most oft-used corkscrew in the restaurant is a simple device often known, affectionately, as 'the waiter's friend.' Whether this is

a $5 mix of stainless steel and plastic or a $500 handmade combination of rare woods, bone, and space-age metals really doesn't make much difference. The intention is the same: to have a lightweight, easily transported device which will allow for the quick, efficient, and correct opening of a bottle of wine.

Notes on Service

Handling the Bottle

- The basic principle in handling a bottle of wine is simply stated: all wines, no matter their price or provenance, should be handled as though they are fine, old bottles. This means that they should be handled gently with a minimum of agitation which, in a fine old bottle, would disturb sediment and make separation of the clear wine difficult.
- Young wines which will not be decanted should be presented to the host from the right, with the label upright. The server will repeat the name of the wine and the vintage to ensure that the correct wine has be brought to the table. The wine will be placed upright on the table, ideally on some form of coaster, before opening.

Using a Corkscrew

- The gentle handling of the bottle continues when the cork is extracted; the bottle should not be wrestled with in the air, put between the knees or under the arm, twisted, turned, juggled, jiggled, bent or beaten.
- The foil covering of the cork, or 'capsule' is cut below the lip to ensure that the wine does not come into contact with the capsule when the wine is poured. After the capsule is removed, it is inspected for signs of mold or leakage and placed on a side plate.
- The top of the bottle is also inspected and wiped with a clean cloth
- The worm of the corkscrew is inserted at a slight angle and then screwed down to an appropriate depth. The lever is set against the bottle lip and the cork slowly extracted until it is almost clear of the bottle. At this point the corkscrew should be straightened and the cork eased out the last few millimeters using thumb and forefinger.
- The cork is then twisted off the worm, taking care that the end which had been in contact with the wine (known as the 'mirror') is not touched. The cork is placed on a side plate with the capsule and presented to the host for his or her inspection should s/he desire to examine them. The plate is removed after the wine is poured
- In some restaurants, the sommelier tastes the wine to guarantee its health and then allows the guest to confirm the wine's health, while in others the host him- or herself confirms the health of the wine.
- Guest glasses are filled to no more than one third before the host's glass is filled.
- Opening a bottle of white wine obeys the same principles of gentleness, capsule-cutting, and cork-extraction; however, the wine should be brought to the table in an ice bucket.
- The wine may be opened in the bucket, or on the table.
- Depending on the desires of the guest regarding service temperature, the wine may be returned to the bucket or left on the table

Sparkling Wine Service

- The basic principles involved in opening a bottle of still wine are observed when opening a bottle of sparkling wine, but there are differences, most of which are dictated by the issue of safety.
- Sparkling wine is bottled under considerable pressure—5 to 6 atmospheres—and can be dangerous if mishandled. For this reason, it is opened in an ice bucket with the cork pointed away from guests, the server making sure that at all times he or she maintains pressure on the top of the cork to guarantee that it doesn't shoot out of the bottle like a bullet.
- The capsule is removed, the cage untwisted and carefully removed, with pressure maintained by alternating thumbs.
- The cork should be covered with a cloth and gently twisted out of the bottle without popping.

On Decanting

Watching a sommelier decant a bottle of wine can be one of the more enjoyable experiences for restaurant guests. There is, in its patient unfolding, an almost ritualistic quality.

There are three reasons to decant a bottle of wine: the first and most important is to separate clear wine from sediment in wines which have thrown a deposit; young wines are also often decanted to aerate the wine and volatilize their aromatic components or 'open them up'; third, decanting wine is a form of entertainment and showmanship.

Notes on Decanting

- Young wines to be decanted for the purpose of aeration may be poured quite aggressively into a decanter.
- Older wines, however, should be poured carefully, ideally from a pouring basket into which the wine bottle has been placed upon removal from the cellar. Wines which have been properly stored on their sides with the labels up will have sediment adhering to one side of the bottle. By placing the wine into a basket immediately, this sediment should not be disturbed.
- The whole capsule should be removed, the bottle wiped with a clean cloth, and the cork extracted.
- With a light source beneath the bottle, the wine should be slowly poured into a clean decanter which has been seasoned with a similar wine. Decanting should cease when the sediment reaches the shoulder of the bottle.

On Temperature

The goal attached to wine service temperature is simple to understand: we want to create a situation in which the wine can best express its structure and aroma. It remains a truism, however, that this rarely happens in restaurants, with the common complaint that most restaurants serve white wines too cold and red wines too warm. Lack of knowledge is perhaps not the most common reason for this—it is expensive and space-consuming to have multiple storage locations at different temperatures for different wine styles.

One of the essential duties of the sommelier, however, is to find a happy balance to the storage limitations of the establishment with the needs of the guests.

Notes on Service Temperature

Reds

- To formulate a general rule of thumb for service temperatures, we typically consider the weight and maturity of the wine: typically, heavier wines and older wines are served at warmer temperatures, lighter wines at cooler temperatures.
- Ideal service temperatures for full-bodied, tannic red wines are between 16—18 C.
- For medium bodied red wines, a good temperature range is 13-16 C.
- Especially light-bodied reds can be served as low as 8-12 C.

Whites

- The same basic rule applies to white wine service with one essential difference cropping up where sweetness is also a factor.
- Acidity is emphasized at cooler temperatures and in sweet wines where balancing acidity needs to be emphasized, cooler temperatures are recommended even for weighty wines.
- For full-bodied whites, such as top quality Chardonnay, temperatures as low as 10 and as high as 14 C are recommended.
- For medium bodied whites, 8-10 C is recommended.
- For sweet whites with lowish acidity and light whites, temperatures between 4-8 C are fine.

On Riesling

Riesling is one of the great comeback stories of the last few years. Often regarded by professionals as undervalued and overlooked, more and more consumers are being turned on to the extraordinary versatility of this quintessentially German grape variety. Few other white grapes can do as many things as Riesling: it can sparkle, refresh with zesty acidity, delight with sweetness, and it can last for many years in the bottle.

In the World

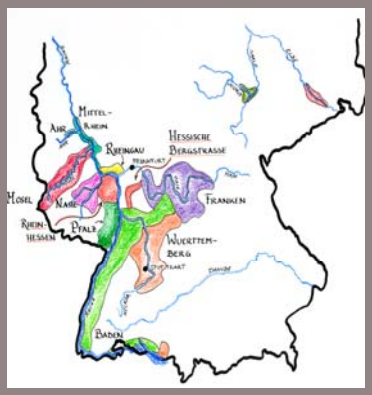
Primary Growing Areas

Native to Germany, Riesling is that country's most important and widely planted variety. All regions in Germany are not created equal, however, and there is a select number of Riesling-friendly regions. Their unique growing conditions meet the requirements of this demanding variety.

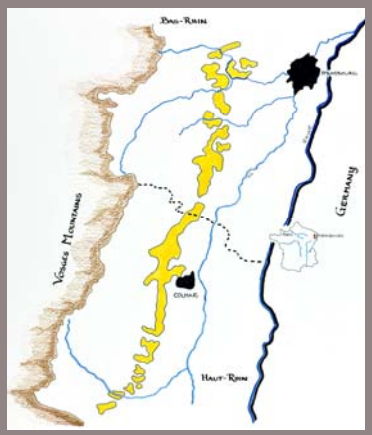
Though Riesling is not a late ripening variety, it is very late ripening relative to the typically short seasons German regions provide. Even in the regions where Riesling is widely planted, it typically requires a combination of excellent sun exposure, heat retaining soil, and protection from cool, northern winds. Germany's Rheingau provides just that and is responsible for some of the country's more concentrated expressions of Riesling. Equally fine, but different in style, are the delicate Rieslings of the Mosel, to the west of the Rheingau. Like the Rheingau, the Mosel is blessed with a small number of unique vineyard sites: south facing slopes (often steep) with dark, heat retaining slate soils which allow Riesling to ripen fully in most vintages. The generally cooler climate of the Mosel tends to favor the production of lighter styles of Riesling with high acidity and, occasionally, a pleasing spritziness.

The French region of Alsace is also an important source of high quality Riesling. Warmer and drier than most German regions, Alsace typically produces fuller expressions of the grape, partly because of its longer growing season, and partly because of French cultural influence. Though German expressions of the grape typically have a light sweetness to them (this is changing), Alsatian expressions of Riesling are more often dry. Both

Mapping Riesling



Map 15: Wine Regions of Germany



Map 6: Alsace

See Also

Map 17: Wine Regions of North America

Map 23: Wine Regions of Australia

Map 24: Wine Regions of New Zealand

Alsace and Germany, however, are also producers of excitingly intense dessert wines from late harvested or botrytis-affected Riesling grapes.

Secondary Growing Areas

Riesling is also widely planted—and often of high quality—in several other German regions. The Rheinhessen, Nahe, Pfalz, and the Mittelrhein are all important for Riesling and capable of producing wines occasionlly the equal of those from the Rheingau and Mosel.

Riesling can also be found elsewhere in Europe. Italy's Alto Adige can make fine examples, and the grape is also important in Eastern Europe and in Luxembourg. But it is Austria which, it is generally conceded, is most capable of producing Riesling which rivals the quality levels of French and German expressions. The region of Wachau, located along the Danube River, produces typically dry and concentrated Rieslings of exceptionally high quality.

The new world has worked hard to find suitable growing conditions for Riesling in recent years. Though Riesling is a hardy and adaptable variety, it requires climate conditions that allow for long, slow ripening. Historically new world producers have set up shop in regions which are too warm to produce high quality Riesling.

Australia, however, has managed to establish some high quality Riesling production, typically at sites in which high altitude provides the variety with favorable conditions. Typically dry and elegant in style, the Rieslings of South Australia's Eden and Clare Valleys have generated much excitement. New Zealand is also producing fine dry Rieslings, especially in the deep southern regions of Canterbury and Otago.

North America has also had some success with the variety. Canada's Niagara Peninsula makes much use of Riesling for dry and sweet wines and good quality examples are produced in Oregon, Washington, and New York State's Finger Lakes region.

In the Vineyard

Riesling is the darling of cool climate growing regions. Native to Germany, it has evolved into a variety with impressive cold resistance, making it suitable for regions subject to bitterly cold winter temperatures. The source of Riesling's cold resistance is its exceptionally hard wood, which protects the grape not only against cold itself, but also against the freeze-thaw cycles common to some cool climate growing regions.

Early budding and late ripening, Riesling is a generally hardy variety. Its early budding, however, makes it susceptible to *coulure* in vintages with rocky spring weather. In the vineyard, Riesling grape clusters appear small and compact. The compactness of the bunches makes the variety susceptible to rot, though the rot may be positive (noble rot) or negative (gray rot). The susceptibility to rot has made Riesling capable of producing some of the world's finest dessert wines in certain vintages. These wines, labeled *Trockenbeerenauslese* in Germany and *Sélection de Grains Nobles* in France, are often of stunning quality and extraordinarily long lives in the bottle. They are also very expensive.

Vigorous of growth and quite generous in its fruit production, the only real demand Riesling makes of growers is that its growing season be cool and long. Riesling grown in warm climates tend to be flat-tasting and charmless.

In the Winery

Like most aromatic grape varieties, Riesling is typically produced using techniques designed to maintain the pure, unadulterated flavor of the juice itself. Evidence of techniques designed to manipulate flavor, such as MLF and barrel maturation, are almost never encountered in a glass of Riesling. Most winemakers favor stainless steel fermentation at cool temperatures followed by early bottling.

This is not to say, of course, that winemakers entirely avoid playing with their Riesling juice. A survey of Riesling at a local winemaking shop should indicate that Riesling is offered in many diverse styles. This stylistic diversity, however, usually has to do with sweetness levels in the finished wine. To achieve these sweetness levels, winemakers use a variety of techniques, but the most important involve either stopping the juice's fermentation before all of the sugar has been converted to alcohol, or blending dry Riesling with sweet, unfermented Riesling juice.

Because yeasts are very sensitive to temperature, winemakers can stop, or 'arrest,' fermentation by chilling the fermenting wine once it has reached a desired level of residual sugar. In cold temperatures, yeasts go dormant, and they can then be filtered out of the juice. Another technique for adding sweetness to Riesling, common until recently in Germany, is the addition of unfermented juice to a dry wine. This juice, known as *Süssreserve* in Germany, has the dual effect of adding sweetness to the wine and reducing the wine's acid levels. It should be noted, however, that this form of back-blending is increasingly looked on with disfavor in Germany.

Some sweet Rieslings—the finest, typically—are simply made with exceedingly sweet juice which contains far more sugar than yeasts can comfortably ferment into alcohol.

Rieslings are some of the longest lived white wines. The naturally high acid which characterizes the grape is itself a fine preservative, and when combined with residual sugar, another fine preservative, the result can be a wine which can age gracefully for decades.

In the Glass

Though most young Rieslings are very pale in color, with maturity the wine takes on more golden hues. Very old Rieslings can be almost amber in color.

Just as color changes as Riesling matures, so do aromas. In youth, Riesling is typified by intense lemon and lime oil aromas, peach scents, and steely, mineral smells. Other common smells include beeswax and flowers. As Riesling matures, it can develop an unusual gasoline or kerosene quality (what the British call 'petrol').

Dessert wines, especially those from grapes affected by noble rot, typically offer a deeper, more intense aromatic profile. Aromas of apricot, honey, raisins, and baked apples and peaches are common, along with the signature note of petrol.

In the Mouth

Tasters who lose Riesling on the nose often find the grape again on the palate. The reason for this is the variety's signature acidity, which is often unmistakably high. Even at different levels of sweetness or different levels of maturity, Riesling's signature acidity can be a comforting touchstone.

Residual sugar levels in Riesling run the gamut from bone dry to fully sweet. Though most German expressions of the variety are relatively low in alcohol, French and new world versions typically have medium alcohol levels.

On Gewurztraminer

Gewurztraminer (Gewürztraminer, in Germany) has a tendency to divide drinkers: some love it, and some genuinely dislike it. Others simply don't want to expend the effort in trying to pronounce it.

Though the name of the grape is German (literally translated, it means 'the spicy grape from Tramin'), it is not likely a grape of German origin. Tramin is the town in Italy more widely known as Termeno. Located in the Alto Adige, Termeno is located in an area which was, before World War I, a part of the Austro-Hungarian Empire. Gewurztraminer is likely a mutation of the local Traminer grape, an ancient variety which, like all very old varieties, is particularly prone to mutation. In this case, at least, it is the spicy (or, really 'perfumed') mutation which is far better known than the parent plant.

In the World

Primary Growing Areas

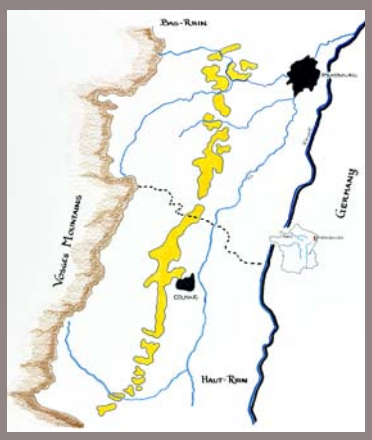
Despite its origins in the Alpine hills of north-eastern Italy, Gewurztraminer is better known far to the west and north of its homeland. Most agree that the finest examples of the grape today derive from vineyards in the foothills of the Vosges Mountains in north-eastern France's Alsace region. Cool of climate but with a long growing season, Alsace provides ideal conditions for Gewurztraminer to produce some of the world's most intensely aromatic and powerful dry and sweet wines.

Gewurztraminer is also planted cross the Rhine River in the German regions of Baden and Pfalz where it can make quality wines which are usually lighter and less intense than Alsace's finest. That, to be sure, is anything but a bad thing, because these lighter, often off-dry examples from Germany can be particularly pleasant to drink with food.

Secondary Growing Areas

There are small pockets of Gewurztraminer spread out in eastern and southern Europe and it remains a component of the wine styles of its Alto Adige homeland. But it is not really widely grown in Europe outside of Alsace.

Mapping Gewurztraminer



Map 6: Alsace

Map 15: Wine Regions of Germany

See Also

Map 8: Wine Regions of Italy

Nor has the new world developed any great love affair with Gewurztraminer. There may be plantings in just about every new world nation, but Gewurztraminer is far from a signature grape variety in any of them. Generally speaking, the new world has focused its plantings in regions which are generally too warm for Gewurztraminer. That, however, may be changing as growers look for cooler areas and countries like New Zealand and Canada, already blessed with cool growing regions, increasingly experiment with the grape.

In the Vineyard

Gewurztraminer does not enjoy the great geographic reach of varieties like Chardonnay or Sauvignon Blanc. But the relatively limited distribution of Gewurztraminer around the world is not simply because of its complicated looking name or love-it-or-hate-it flavor profile. Gewurztraminer is simply not an easy grape to grow.

Part of the problem with Gewurztraminer is its contrary nature. Though it is a colored variety, with typically pinkish-red berries, it is invariably used to make white wine. Though it requires a long growing season to develop its characteristic flavors, it doesn't enjoy growing in warm regions where its ripening is accelerated. Though it is an intensely aromatic grape, that intensity only develops in ripe grapes which can reach very high sugar levels, but alarmingly low acid levels. Though it prefers a cool climate, it buds and flowers early, making it susceptible to spring frosts and *coulure* in wet spring seasons. Gewurztraminer is an unreliable yielder—and is never generous—and its berries ripen unevenly. Unlike many fine varieties, Gewurztraminer prefers more fertile soils and, in Alsace at least, is only planted in parts of vineyards with sufficient clay and organic matter.

Gewurztraminer is also susceptible to various vine maladies including powdery mildew and various forms of rot. The saving grace of this, however, is that when ideal conditions present themselves, the variety may develop rot of the noble kind and produce some of the world's most uniquely intense—and prohibitively expensive—botrytis-affected sweet wines. In Alsace, these wines are known as *Sélection de Grains Nobles*.

In the Winery

For all the trouble it gives to growers, Gewurztraminer is gentle on the winemaker. The intense aromatics of Gewurztraminer, which are the variety's instantly recognizable signature, are developed in the vineyard, not in the winery. The narrative associated with making Gewurztraminer grapes into wine is mercifully short: pick it, press it, ferment it, bottle it.

This is not to say that the juice is necessarily easy to work with. Care must be taken during pressing to minimize contact between the juice and the pigment-bearing skins. Brief skin contact, however, is not uncommon and can give many wines a dullish, brassy color.

The juice is also particularly susceptible to oxidation and so must be protected in order to preserve its aromas. There will always be winemakers willing to experiment, but as a rule, Gewurztraminer never sees the inside of a barrel or undergoes malolactic fermentation. The goal with aromatic varieties like this is always to preserve the primary fruit characteristics and natural acidity.

In the Glass

Of all grape varieties, Gewurztraminer is one of the easiest to identify. Typically deep of color and viscous of texture, Gewurztraminer is also penetratingly aromatic. Those aromas are a complex blend of the fruity and savory and include lychee, ginger, cinnamon, roses, Turkish delight (the jelly candy traditionally flavored with rose water), and musk. To this list many tasters would add a set of aromas we might call 'grooming smells'—hairspray, lanolin, various types of face cream.

Though the high alcohol levels in some expressions of Gewurztraminer can help it withstand the ravages of time, few tasters agree that it is a variety that is a more charming wine after extended bottle ageing. Most of the best Gewurztraminer is consumed when it is young and fresh.

In the Mouth

The love-it-or-hate-it quality of Gewurztraminer is often decided when the wine arrives on the palate. Even tasters who find its aromas seductive can have difficulty with the forcefulness of the wine in the mouth. With its characteristic full body, high alcohol, low acidity and bone-dryness, Gewurztraminer can introduce an element of fatigue for tasters who may finally find it all too much. Then again, a glass of Gewurztraminer with a gooey serving of Munster cheese can make for one of the most sublime fifteen minutes in a wine drinker's life.

On Muscat

(Muscat Blanc à Petit Grains, Muscat Ottonel, Muscat of Alexandria)

Of all of the grape varieties we encounter in this course, Muscat (the grape of many synonyms) may be the most ancient. It is also, no matter the color of its berries or the style of wine in which it appears, one of the most easy to identify in the glass.

In the World

Primary Growing Areas

Though Muscat's origins are somewhat misty, many believe that it is likely an ancient Greek variety. It is, to be sure, still an important component of the Greek wine industry today where it is responsible primarily for high quality sweet wine.

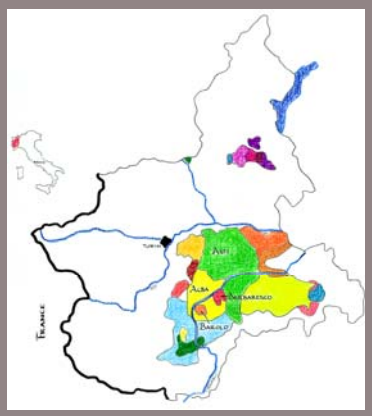
Most new world consumers, however, are likely to know Muscat from other sources, especially the Italian region of Piemonte. In Piemonte, Muscat (as Moscato), is responsible for producing enormously popular sweet fizz—the fully sparkling Asti, and the lightly sparkling Moscato d'Asti.

The variety also has considerable importance in France. In Alsace, the variety is used to produce both bone dry table wines and sweet dessert wines. Though the variety is highly esteemed in Alsace, it is difficult to grow so far north and so quantities of Alsatian Muscat are often extremely limited.

Southern France, however, with a climate more favorable to the grape, is capable of producing greater quantities of Muscat. The wines of the south are stylistically very different from those of Alsace, largely because they are almost always fortified with neutral grape spirit in order to retain intense sweetness levels. Several small areas of the south produce fortified wines from Muscat, but perhaps the best known remains Muscat de Beaumes-de-Venise from the village of Beaumes-de-Venise in the southern Rhône Valley.

Mapping Muscat

Map 8: Wine Regions of Italy



Map 9: Piedmont

See Also

Map 1: Wine Regions of France

Map 5: Rhône River Valley

Map 6: Alsace

Map 23: Wine Regions of Australia

Secondary Growing Areas

Though Muscat appears in small quantities in most new world countries, only Australia has developed its own unique expression of the variety. Fortified styles (typically from a brown skinned version of Muscat) which are sold as 'Liqueur Muscat' are becoming increasingly popular with consumers. These wines, some of which have been matured for decades before bottling, can provide particularly intense experiences.

In the Vineyard

The Muscat family is a large one, and different versions of the grape have different abilities to adapt to different soils and climates. The most classic expressions of the grape, however, indicate that it is a true Mediterranean variety and thrives best in the long, warm growing season that part of the world provides.

Generally hardy in favorable climates, the variety is, like most *vinifera* varieties, susceptible to downy and powdery mildews. If Muscat has a particular nemesis, however, it is the insect. Muscat's intense aromatics begin in the vineyard and have the tendency to attract of wide variety of insect pests.

In the Winery

As we've hinted already, Muscat is incredibly versatile in the winery. It may be produced as dry wine, sweet wine, lightly sparkling (*frizzante*) wine, fully sparkling (*spumante*) wine, freshly fruity fortified wine, or long-aged oxidized fortified wine.

In the midst of all this diversity, however, there is a unifying thread to the production of Muscat wines: the desire to preserve the aromatics of the grape. The standard flavor-enhancing manipulation of oak-aging is almost never encountered in wines from Muscat. For the same reason, When Muscat is made into a sparkling wine, producers avoid following the Champagne method, which introduces flavors to the wine other than those of the grape.

The one exception to this is in a small class of fortified Muscats which are subject to long maturations before bottling. Both southern France and Australia are known for this style. And far from undermining the intensity of the variety, long maturation after fortification can turn Muscat into a unique, even profound dessert wine.

In the Glass

In terms of color, at least, Muscat is a chameleon in the glass, ranging in color from deep brown to straw yellow. On the nose, however, Muscat is one of the few varieties which can actually be described as 'grapey.' Typically intense fruit aromas of green grapes, raisins, and tangerines combine with strong floral and spice scents to produce a complex nose. Not surprisingly, musk is an aroma often noted by tasters.

In the Mouth

Given the wide range of wine styles for which Muscat is pressed into service, the variety is highly variable on the palate. What seems to unify all Muscat, however, is low acidity. Dry styles of wine are typically medium to full of body, while fortified styles are invariably full of body and usually fully sweet.

On Pinot Gris/Grigio

Pinot Gris has something of an identity crisis. Though it makes white wines, the grapes on the vine look unmistakably as though their destiny is to make red wine. Though in parts of France it is understood as a noble grape of noble parentage, capable of making wines of exceptional quality, most drinkers know it best as a simple and undistinguished white wine from grapes forced to yield too many buckets of juice.

In the World

Primary Growing Areas

A mutation of Pinot Noir, Pinot Gris has a long and storied history in eastern France. Once upon a time (and again, today, experimentally) it could be found interplanted with Pinot Noir in many of Burgundy's finest red wine vineyards where it would act as a softening agent in a Pinot Noir must. Though the variety is still permitted and can still be found in its Burgundian homeland, it has achieved far more success, and more respect from growers, further north in Alsace.

In Alsace, Pinot Gris is part of the noble quartet, with Riesling, Gewurztraminer, and Muscat which is responsible for that region's finest wines. Whether dry or sweet or somewhere in between, the variety is prized in particular for its ability to pair with the rich and intense foods of the region.

Outside of France in the old world, it is Italy that takes the prize for having the most extensive plantings of the grape. Italy's Pinot Grigio is a fixture in the north east of the country with good, and occasionally exceptional wines produced in Friuli-Venezia Giulia, Lombardy (where it is used in traditional method sparkling wine) and Trentino. The Veneto and the Alto Adige are also widely planted to Pinot Grigio and it is in these regions that great quantities of easy-drinking, inexpensive wine are produced.

In the new world, Pinot Gris has met with mixed success, and though there are plantings in most countries, it is only in Oregon that Pinot Gris has become a dominant variety. Oregon's conversion to Pinot Gris, however, is relatively recent and it is too early to identify a typical Oregon style.

Mapping Pinot Gris

Map 1: Wine Regions of France

Map 18: West Coast North American Regions

See Also

Map 8: Wine Regions of Italy

Map 15: Wine Regions of Germany

It was only in the year 2000 that Pinot Gris overtook Chardonnay to become Oregon's most widely planted white grape.

Secondary Growing Areas

In Europe, Pinot Gris is quite widely planted in Eastern Europe and there are pockets of the grape in several other countries, such as Austria. Germany (where the grape is known as either Ruländer or Grauerburgunder) has become particularly fond of Pinot Gris and is increasing plantings in the southern regions of Baden and Pfalz.

The variety is also planted in California, and, to a more limited extent, can be found in New Zealand, which is thought to have a bright future with the grape.

In the Vineyard

Given the close relationship between Pinot Gris and Pinot Noir, it is not surprising that the two varieties act in similar ways in the vineyard. Like the parent plant, the grey version prefers reasonably fertile, mineral-rich soils with good depth and a temperate climate. Pinot Gris grown in warm climates can suffer from a flabby, oily texture in the mouth from low acidity combined with high alcohol.

Identical to Pinot Noir as far as leaf shape is concerned, Pinot Gris can also look identical in its berries, which can come as something of a surprise to Pinot Gris lovers who have never seen the grape in the field. But there are several pink to blue skinned berries used to make white wine—some familiar, like Pinot Gris and Gewurztraminer—and some less so, like Greece's Moscophilero. In the vineyard, Pinot Gris has access to a range of colors and may appear as anything from a brownish pink to a grayish blue.

The old adage which states that 'wine is made in the vineyard' has a particular relevance when we contemplate the world's supplies of Pinots Gris and Grigio. If there are two dominant styles of wine produced from the grape—one deeply colored and full of body, and one much paler, lighter and higher in acid—it has much to do with what happens in the vineyard and with the cultural choices which inform vineyard management. Though there are exceptions on both counts, Italian growers typically harvest when their Pinot Grigio is less mature physiologically, before sugar levels get too high and acids get too low. In Alsace, the grape is left on the vine longer, not only to increase sugar and reduce acidity, but to allow for the development of flavors in the grape. Yields, as well, are typically higher in Italy than in Alsace.

In the Winery

As is so often the case—especially with white wines—much of what distinguishes one Pinot Gris from another is more the result of vineyard management than decisions made in the winery. Nevertheless, for many drinkers the early-picked, cool-fermented-in-stainless-steel versions so often encountered from north-eastern Italy represent the basic model of the grape. It would be a mistake, however, to see this style as the true model, given that it is a relatively recent phenomenon. Nor does it do much to represent the variety's potential for quality and versatility.

Pinot Gris is, in fact, a versatile grape, capable of making high quality white wines of varying sweetness levels, of contributing to sparkling wines in some regions, and even of withstanding and improving under the influence of barrel maturation and time.

By far the dominant approach to Pinot Gris, however, is to ferment the juice in inert vessels such as stainless steel after a careful pressing designed to minimize contact between the juice and the skins. Cool fermentation will follow and bottling will be done soon after fermentation to preserve the fresh aromas of the wine.

Ambitious producers, however, may stray from this standard recipe in order to achieve greater complexity, deeper color, and greater potential for ageability. Brief skin contact during pressing can give the wine a deeper color—anywhere from a brassy yellow to a salmon pink. Barrel fermentation or maturation can introduce the familiar aromas we associate with oak and controlled oxidation.

In the Glass

Depending on harvest times and winemaking decisions, Pinot Gris can range in color from an almost watery clarity with a greenish tinge to a deep, coppery-brassy yellow.

Its aromas are likewise variable and may be anywhere from muted to pronounced in intensity. Paler and lighter bodied examples of the wine often display subtle apple or pear aromas while darker, fuller-bodied examples have a much more complex set of aromas including apricot, peach, musk, honeysuckle, and canned mushrooms. Sweeter styles from late harvested or botrytis-affected berries often offer the most intense aromatic experiences with nuts and honey accompanying the orange tree fruit notes.

In the Mouth

It is, by now, a rather obvious theme: Pinot Gris expresses itself in at least two common and very different ways. This theme applies to the way it acts on the palate, as well.

Earlier harvested examples of the grape typically display medium to high acidity with moderate body and alcohol. Many high-volume commercial examples of this type also retain some residual sugar designed to balance the acidity levels and please consumers.

The Pinot Gris of northern France, however, is typically an altogether more serious wine with medium to high alcohol and low to medium acidity. The wines are typically dry (excepting, of course the late harvested and botrytis-affected wines) but discovering some residual sugar is not at all an uncommon event.

On Chenin Blanc

Despite seemingly endless praise from some of the world's most influential wine critics and scholars, Chenin Blanc appears to be a grape variety in decline, even in its homeland. The qualities that encouraged its planting in several countries and in significant quantities—its productivity, versatility, good disease resistance, naturally high acidity—all of these seem to be insufficient in the modern wine market. For what Chenin Blanc typically lacks is precisely what the current market appears to value most: immediate, vibrant fruitiness. Chenin Blanc has much to offer, but much of what it has to offer requires patience, something sadly lacking from current wine culture.

In the World

Primary Growing Areas

Though Chenin Blanc has the distinction of being one of the first of the noble European grapes to find its way to the new world, the most distinguished expressions of the variety remain resolutely French. This makes sense, given that Chenin Blanc is almost certainly native to France's Loire Valley. It is there, where the grape is sometimes known as Pineau de la Loire that the grape delivers its most memorable and long-lived wines.

Within the Loire, however, Chenin Blanc is capable of great stylistic diversity. Chenin Blanc can arrive on the palate at any and all sweetness levels—from searingly acidic and dry to unctuously sweet. The great dry Chenin Blancs of the Loire derive from the vineyards of Vouvray, and the often steep hillsides of the small Savennières appellation. Sweet expressions are also to be found in Vouvray, but dedicated sweet wine producing areas include the Côteaux du Layon and, within its sprawling landscape, the tiny commune appellations of Bonnezeaux and Quarts-de-Chaume.

In the new world, Chenin Blanc's most historic outpost will forever be South Africa where the grape—known as *Steen* in Afrikaans—has long been the nation's most widely planted variety. The grape has also, for better or worse, been the anchor of the nation's beverage alcohol industry,

Mapping Chenin Blanc

Map 1: Wine Regions of France

Map 4: Loire River Valley

Map 21: Wine Regions of South Africa

and has been pressed into service for many different wine styles and for distillation as well.

Secondary Growing Areas

Chenin Blanc's versatility has also encouraged wide planting in Australia and California. Despite the significant quantities, however, the grape receives little attention from serious winemakers in either country.

Rarely seen as a varietal wine, it is much more likely to find itself as an anonymous component of a mass-produced branded wine. This is not necessarily Chenin Blanc's fault, of course. There is a considerable market for inexpensive blended wine and Chenin Blanc's productivity and versatility make it useful for these products. The problem however, for those looking for wines with a defined Chenin Blanc quality, is that in both Australia and California, the grape is typically planted in hot, dry, irrigated regions where the vine is forced to yield at levels which mute its unique character.

In the Vineyard

Chenin Blanc is a variety which seems to produce much of its best wine in vineyards barely capable of supporting it. Early budding and late ripening, the variety would seem to be better suited to a climate warmer and a season longer than the Loire Valley typically provides.

When Chenin Blanc is granted such a situation, however, the vine tends to produce vast quantities of thin, dilute wine. This, to be sure, is an attractive feature for growers making bulk wines or base wines for spirits.

Though generally hardy, the variety is subject to powdery mildew and to frost in its native regions. Chenin Blanc is also subject to rot, which may be either gray or noble. Like Riesling, Chenin Blanc is capable of producing outstanding dessert wines from nobly rotten fruit in certain vintages.

Given the sheer volume of Chenin Blanc planted in the world, it will not be surprising to learn that the grape is highly adaptable to different soil types. That said, however, the finest expressions of the grape to date have typically been produced on calcium rich soils like limestone or tuffeau as well as schist.

In the Winery

The theme of 'hands-offism' which dominates the making of aromatic white wines continues with Chenin Blanc. The variety is typically fermented in neutral vessels at cool temperatures and then bottled early. Chenin Blanc, more than most varieties, is highly subject to oxidation.

Where Chenin Blanc is most interesting, however, is in the extraordinary diversity of style in which it can be produced. It is a mainstay of the sparkling wine industry in the Loire Valley, where it contributes its valuable acidity. It is also produced in all styles from bone dry to lusciously sweet. In favorable years, it is capable of producing sweet wines from botrytis-affected berries.

Because of its naturally high acidity levels, Chenin Blanc is capable of a fairly long evolution in bottle, especially in sweet styles. Some of the finest, indeed, are capable of a decade or more of maturation and can emerge from their slumber as particularly fine dessert wines.

In the Glass

As I've suggested, Chenin Blanc is rarely a particularly forward wine on the nose. Low to medium intensity aromas of apples, damp straw, hay, and wet wooly socks characterize the variety. Sweet styles tend to be more intense on the nose and often exhibit signature botrytis-influenced aromas of apricots, honey, and, in maturity, nuts.

The tendency to bottle Chenin Blanc soon after fermentation renders most expressions of the variety a pale straw color, though with age, the variety develops a pleasing golden hue.

In the Mouth

Chenin Blanc can be experienced at all sweetness levels—from bone dry to fully sweet. Acid levels, however are usually consistently high, though some warm climate expressions of the grape can be more moderate of acidity. Alcohol levels are similarly variable: classic expressions of the variety tend to medium alcohol, but some new world examples can lean toward high alcohol.

On Cellaring and Storage

Studies focused on consumer habits are remarkably consistent: we drink almost every drop of wine we purchase within a few hours of returning from the shop. That, however, doesn't seem to deter wine critics or back-label-writers from commenting on the ageability or 'Best After' date of many of the wines on store shelves.

What Happens to Wine as it Matures?

Lovers of fine older wines may not care a lick what exactly happens inside a bottle of wine as it matures. They care what it tastes like when the cork is removed and it splashes into a clean glass. Though we are not going to deal with the more complicated scientific language of the maturation process, we do want to make mention of how the wines are affected by their maturation.

As time passes, red wines change in appearance and taste. They become paler in color, moving from the purples and rubies of youth to more brown-influenced reds as they get older. Colors such as garnet, tawny, and the rather imprecise 'brick' are often used to describe the color of older red wines. At the same time, they are rendered softer, less tannic, less astringent on the palate. Often professional critics prescribe 'time to let the tannins soften' or 'time to let the tannins round out.' Tannins in some young wines can feel almost jagged and give the sensation of drinking liquid sandpaper.

While these changes in wine's structure are occurring, changes are also taking place in the wine's aromas. The primary, fruity aromas of the grape variety recede as time passes and are replaced with what we call 'bouquet,' a complex set of aromas which suggest a pleasing form of decay—autumnal, earthy aromas, dried fruits.

The physical qualities of the wine also change. Red wines throw sediment into the bottle (off of which they will need to be decanted) and the total volume of liquid in the bottle decreases. This can be seen by observing the space between the wine and the bottom of the cork inside the bottle. This space (or 'ullage') is very important to observe when purchasing older wines. Too much and there is a risk that the wine inside the bottle will be spoiled.

The process is much the same for white wines though there are some important differences. White wines typically do not throw sediment in the bottle, and if they do, it is a very small amount. And color changes in white wines are opposite to those in reds: red wines get paler as they age; white wines get darker. Older white wines tend to have golden hues and may, with advanced age, appear unmistakably brown.

As with red wines, white wines also develop a different aromatic profile with age. The bouquet they develop is similarly decadent: baked fruits, spice, nuts, wet wooly socks.

It is important to take note of two qualifications to the little narrative of maturation we have provided. First, different wines mature at different rates. Some wines may make the journey from aroma to bouquet, purple to brown in a few short years. Others will take decades. And, second, the maturation process we've described can only take place if wines are cellared properly during their development.

On Proper Cellaring

The French word for the period of time a wine spends at the winery, often in barrel, where it is tended before bottling, is *élevage*. The word, loosely translated, means 'raising' and the same word is applied to the raising of a child—*l'élevage de l'enfant*. When a wine which is to be cellared reaches a consumer, it must be similarly raised, and just like a child, will respond either positively or negatively to the conditions in which it finds itself. Mercifully, raising a wine is far less complicated than raising a child and there are no competing theories as to how best to do it, no theories on the virtues of time-outs, or the evils of spanking, hours of television, or scheduling play-time.

Instead, there is agreement on what factors make for ideal cellaring conditions and home consumers and restaurants are advised to observe these conditions in order to protect their investment and to ensure that the wine will be healthy when it has reached its peak of maturity. If ideal cellaring conditions are not observed, the fault rests with the buyer, not the producer.

Temperature

The ideal temperature for wine storage is in the range of 10-13 C. Most wines of quality, however, can mature at a broader range as well—7-16 C, roughly—but it should be emphasized that a wine's rate of maturation is affected by temperature: at warmer temperatures, the rate increases; at cooler temperatures, it slows.

The greater issue with respect to temperature is constancy. Liquids expand and contract as temperatures rise and fall and if fluctuations occur—especially if they are rapid—there is a danger that the cork's seal will be lost and wine will leak up the cork and suffer from oxidation or bacterial spoilage.

Prolonged exposure to high temperatures can also cause the wine to develop cooked or stewed flavors—a wine fault known as 'maderization.'

Darkness

Wine is a photo-sensitive liquid, and is ideally stored in the dark. Light causes pigments to fade in red wines and darken in whites.

Humidity

High and constant relative humidity (75-80%) in a cellar is also important for long term cellaring. Most fine wines are sealed with cork—essentially a piece of bark—and so humidity is important for maintaining the cork's integrity. If humidity is too low, the cork can dry out and contract, causing oxidation of the wine and leakage. This is also why wine is best stored either on its side or at a slight angle: maintaining contact with the wine keeps the cork moist.

Excessive humidity can also be a problem and cause mold development which can damage labels and capsules. Maintaining good airflow and proper ventilation in the cellar, however, can do much to help avoid mold problems. For that matter, given the choice between humidity which is either too high or too low, cellar keepers will always opt for too high.

Freedom from Vibration

Maturing wine should be left alone in its gentle slumber, away from high traffic areas.

Modern wineries have invested heavily in equipment and winery designs which allow them to handle the fruit and the finished wine in the gentlest possible ways. One of the most popular modern winery designs is what is known as the gravity-fed or gravity flow winery where the successive stages of the winemaking process occur at successively lower levels—reception of fruit at the top, crushing at the next, fermentation at the next, pressing at the next, and so on. The philosophy which guides the modern winery has its parallel in the wine cellar: wine matures best when it is left alone, not constantly moved around or shaken up.

Vibration and movement affect the chemical and physical changes which occur as a wine matures and should be avoided as much as possible. Wines should be stored either with labels upright or with some sort of bin number system so that the location of the wine is known without the necessity for pulling out bottles to find the correct wine

Cleanliness

Wine can be sensitive to odors in the cellar and, ideally, the cellar should be kept free of odors and should be well-ventilated and dedicated. Only wine and spirits should be stored together.

On the Question, 'Why Bother?'

With so many conditions attached to proper wine storage, it is not unreasonable to ask, "Why bother?" The vast majority of wines are consumed within hours of purchase, after all, and most are made to be treated in just that way. All wines age, but only a small number of wines mature into a liquid which is noticeably different and arguably more pleasurable (or 'better') than it was in youth.

The simple answer to "Why bother?" for the home consumer is that you enjoy the structure and flavor which is unique to mature wine: it provides a level of pleasure which is worth jumping through a few hoops to experience. If, after tasting mature wines which have been properly cellared, you find that you do not appreciate their unique qualities, then there really is no reason to bother.

But even in the absence of love, there are a few other potential motives for cellaring wine. Some consumers purchase certain wines strictly as investments with the intention of realizing a reasonable rate of return when the wines are re-sold, and for these people, proper cellaring is essential. Others entertain regularly and like to provide their guests with the option of mature wine. For these people, too, proper cellaring is crucial.

The issue is marginally more complicated when it arrives in the restaurant setting. Successful restaurants with thoughtful and serious wine programs will generally try to offer guests the option of mature wine. Restaurants must balance a few issues, however, when deciding how best to provide their guests with such options. The first, and most important issue is financial. Providing proper storage can be expensive; cellaring wine ties up capital; and there is no guarantee that a reasonable return on that capital will be realized. Avoiding the potential pitfalls of wine investment in the restaurant setting, however, is one of the essential duties of an effective sommelier.

On Merlot

Perhaps no grape variety has at once benefited and suffered from media attention over the last ten years than Merlot. Attention and mass consumption has rendered the variety so fashionable as to be unfashionable and made it so ubiquitous on store shelves and restaurant wine lists that it appears to be frankly overexposed. With so much Merlot waiting around every corner, it is not surprising that a certain cynicism would develop around the variety and it would become *de rigueur* to vilify it, to see it as a sort of training wine, a less than serious form of adult soda pop.

All of this, of course, is beside the point when it comes to understanding the variety itself. For though it may be true that faddishness encouraged profiteering and gave us some poor quality wine, it is also true that Merlot is the primary grape in some of the world's most sought after and highly praised wine.

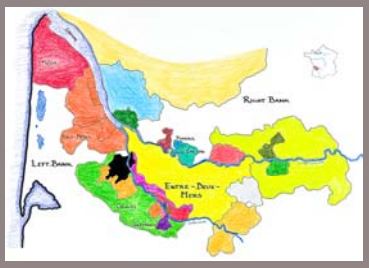
In the World

Primary Growing Areas

The popularity of Merlot over the past couple of decades has encouraged considerable growth in plantings in the new world. But it needs to be emphasized that, in terms of quantity at least, Merlot remains most important and most widely planted in France.

Native to Bordeaux, Merlot is that region's most planted variety and an important component in most all of the region's red wines. On the well-drained gravel soils of Bordeaux' Left Bank, Merlot typically plays a supporting role in blended wines based on Cabernet Sauvignon. But in the cooler, moister soils of the Right Bank and Entre-Deux-Mers, Merlot takes a lead role. Though a cynic might suggest that Merlot's dominance in these areas is largely the result of Cabernet Sauvignon's inability to ripen reliably in the cooler soils, these regions have developed an impressive set of blended wines based on Merlot. The district of St.-Emilion and the small commune of Pomerol are the globally recognized leaders in the production of high quality, Merlot-dominated red wine.

Mapping Merlot



Map 2: Bordeaux

See Also

Map 1: Wine Regions of France

Map 8: Wine Regions of Italy

Map 17: Wine Regions of North America

Map 18: West Coast North American Regions

Map 19: California's North Coast

Map 20: Wine Regions of South America

Map 23: Wine Regions of Australia

Map 24: Wine Regions of New Zealand

Secondary Growing Areas

In France, Merlot is also important in several regions surrounding Bordeaux and extending into south western France. Given its popularity as a varietal wine, it is also not surprising to find that Merlot has become an important variety in France's south for the production of simple country wine.

Elsewhere in Europe, Merlot is also widely planted, though its presence often relies on its ability to play a supporting role to other popular varieties or to produce inexpensive varietal wine of variable quality. Italy, however, has produced some high quality varietal and blended wines, especially in Tuscany and in the north eastern regions of Trentino-Alto Adige and Friuli-Venezia Giulia. Merlot is also the primary variety of the Swiss-Italian canton of Ticino where it is used to produce quality wines in several different styles.

In the new world, it is almost easier to list the places where Merlot is not found than to attempt to account for all of the regions with significant plantings. The grape is found all over the Americas, Australasia and South Africa. Regions which have developed reputations for high quality expressions of the variety are relatively few in number. California's Napa Valley, the Columbia Valley in Washington State, and the regions of Chile's Central Valley, however, are all worth investigating.

In the Vineyard

One of the attractions of Merlot for growers is the relative ease with which it produces generous quantities of fruit. Though this has given the world vast seas of reasonably priced wine of modest quality, it has done little to contribute to Merlot's reputation as a quality variety. One of the other attractive features of the variety for growers is its ability to ripen in climates and soils too cool for Cabernet Sauvignon, its flavor relative, fellow traveler, and common blending partner.

It would, however, be a mistake to suggest that cool climates and moist soils represent a sort of ideal for the variety. It is true that in warm climates not blessed with cool evening temperatures, expressions of Merlot can be flat tasting due to a lack of refreshing acidity. But Merlot has proven able to produce excellent wines in comparatively warm and well-drained soils as well, such as those of Bordeaux' left bank.

In general, Merlot is a hardy variety, but it is far from maintenance free. The variety is early in almost everything—budding, flowering, ripening. The quick start the variety gets in the spring, however, can make it susceptible to the vagaries of spring frosts and *coulure*.

The berries in a Merlot bunch are large, deeply colored, and loosely clustered. Though the loose bunches offer some protection against mildew, much of that is undermined by Merlot's relatively thin skins. Downy mildew and gray rot, in particular, can be problems in moist weather.

In the Winery

Merlot is not a particularly complicated wine for vintners to produce, and this is another reason for the variety's popularity. Winemakers can be reasonably certain that the fruit they receive will have abundant sugar to produce at least moderate and often high levels of alcohol. They can also be certain that they will receive berries loaded with pigment capable of making a deeply colored wine to satisfy the surprising number of consumers who associate quality with depth of color.

Vinification typically follows the standard pattern for red wine. The structure and flavor profile of Merlot give it an affinity for oak barrel maturation, and this is an option often chosen by winemakers.

Varietal Merlot is, however, capable of fairly significant stylistic diversity and enterprising winemakers are capable of producing versions of the grape ranging from dense, structured wines capable of mid to long term cellaring, to simple, juicy, early drinking wines. The grape's popularity has also given to rise to 'White Merlot,' a rosé often vinified off-dry.

Merlot is also of great importance for what it brings to blended wines. The richness, high alcohol, deep color, and suppleness in the mouth which characterize varietal Merlot makes it a highly desirable partner for varieties with ample levels of tannin and acid, but less forwardness of fruit. In physical terms, these are wines with big bones and not much meat to cover them. Blending in Merlot can effectively flesh out the wine. The technique works in reverse, of course; more structured wines may be added to a wine dominated by fleshy Merlot in order to provide structure.

Though Cabernets Sauvignon and Franc are Merlot's most common partners in the Bordeaux region, it is not uncommon to find to find the grape blended with Sangiovese in Italy or Tempranillo in Spain among other grapes. When blended with grapes varieties with significant acid and tannin levels—which varietal Merlot may lack—the cellaring potential of the variety can increase considerably.

In the Glass

Good quality Merlot exhibits deep color and medium to high intensity aromas of black fruits such as plums and black cherries. In some climates, the same fruits can express themselves in dried forms—prunes rather than plums, dried cherries, and also fig. In barrel matured versions, there are also often aromas of brown spices (nutmeg, clove) which are often described as 'Christmas pudding' or 'fruit cake' smells. Occasionally, we also find aromas of roasted things, like chocolate and coffee. Under ripe Merlot can taste disturbingly vegetal and resemble unripe Cabernet Sauvignon with abundant bell pepper aromas.

In the Mouth

Consumers have long valued Merlot for the richness and suppleness of the wine in the mouth, especially when the wine is young. This may be more important to most drinkers than the particular set of aromas associated with the variety. Though Merlot is typically modest in terms of both tannin and acidity (though this feature can also be disturbingly low), high quality expressions of the variety can be quite high in tannin.

On Cabernet Franc

Cabernet Franc has some of the qualities of a first rate character actor. Even though he has a long resume loaded with great films, few moviegoers actually associate the actor with those movies. Once in a long while the character actor gets a starring role, but the movies in which he stars never seem to generate the critical acclaim or public recognition of the big films in which he was a bit player.

So it is with Cabernet Franc, which always seems to play behind Cabernet Sauvignon or Merlot—or both at once. This fact should not diminish the importance of the variety, however, either on its own or as a helper to those better known varieties. The fact remains that Cabernet Franc is an important component of some of the world's most celebrated wines and is an essential component of their structure and flavor.

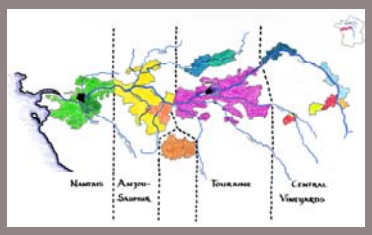
In the World

Primary Growing Areas

Cabernet Franc is a variety whose origins lie in southwestern France, where it remains an important blending variety. The wines of Bordeaux, in particular, make much use of the variety. Though never first in importance, Cabernet Franc is second, after Merlot in the wines of the Right Bank, and third, after Cabernet Sauvignon and Merlot, in the wines of the Left Bank. Cabernet Franc's relative importance on the Right Bank has much to do with the variety's tolerance of cooler soils which allows it to grow in areas where Cabernet Sauvignon might not ripen.

The relatively early ripening and cold tolerance of the variety was observed early in France's viticultural history and Cabernet Franc quickly made its way north from Bordeaux to the cool Loire Valley. Here the variety dominates in several regions and is typically used to produce popular, early drinking reds and rosés. The Loire Valley climate only tolerates early ripening reds, and though there are others which share this characteristic—Gamay and Pinot Noir, for example—Cabernet Franc remains the region's most important red grape for quality

Mapping Cabernet Franc



Map 4: Loire River Valley

See Also

Map 1: Wine Regions of France

Map 2: Bordeaux

Map 8: Wine Regions of Italy

Map 17: Wine Regions of North America

Map 18: West Coast North American Regions

Map 20: Wine Regions of South America

Map 23: Wine Regions of Australia

Map 24: Wine Regions of New Zealand

wine. Important appellations specializing in Cabernet Franc include Chinon, and Borgeuil.

Secondary Growing Areas

Given Cabernet Franc's failure to ascend to dominance even in its home region, it is perhaps not surprising that the variety tends to maintain its status as blending variety in other regions as well. Elsewhere in Europe, for example, we are most likely to find the variety in a supporting role near to significant plantings of Cabernet Sauvignon or Merlot. Australia, the United States, Chile, and Argentina all have plantings of the variety primarily in support of other varieties. The same is true of northern Italy and various parts of Eastern Europe.

If Cabernet Franc has found significant success in the new world, it has tended to be in places where Cabernet Sauvignon is typically incapable of achieving full ripeness with any reliability. New Zealand, Canada's Niagara Peninsula and some north eastern regions of the United States have all had success with the variety.

In the Vineyard

One of the attractions of Cabernet Franc from the farmer's perspective is its hardiness and adaptability. Though less widely planted than its famous offspring, Cabernet Franc is one of Cabernet Sauvignon's parents and shows many of that variety's characteristics in the vineyard. Where it differs, however, is in its tolerance for less than ideal climates and soils. In cool climates or in cool, often water retentive soils, Cabernet Franc is preferred over Cabernet Sauvignon.

Early budding and early ripening, Cabernet Franc sports loose bunches of large blue-black berries. Though generally hardy, it is susceptible to both powdery and downy mildews

In the Winery

Cabernet Franc provides winemakers with a delicious versatility. When vinified as a single variety, the grape follows standard vinification, though its flavors are delicate. In most cases, the wine is less able to withstand new oak and frequent racking than Cabernet Sauvignon. Because it is not typically designed as a wine for long-term aging, some producers ferment at relatively cool temperatures so as better to emphasize the grape's primary fruit flavors. And because those fruit flavors are genuinely pleasant, Cabernet Franc is also a favored grape in the production of pink wines, especially in cool climate regions like the Loire Valley and Canada's Niagara Peninsula. Canada has also produced ice wine from Cabernet Franc—a luscious pink wine with a characteristic raspberry nose which makes a good companion for chocolate desserts.

It is, however, as a component in blended wines that Cabernet Franc is most common. In these wines, the variety's treatment will typically find itself governed by the toughest of the blend's members—usually either Cabernet Sauvignon or Merlot. In the finest wines of Bordeaux' left and right banks, the presence of these grapes allows Cabernet Franc to piggyback its way into greater longevity.

In the Glass

Given Cabernet Franc's partial parentage of Cabernet Sauvignon, it is perhaps not surprising that the two varieties share certain characteristics on the nose. This is not to say that the two are indistinguishable—they are—but there are certain commonalities. Perhaps the most obvious of these

is a tendency toward the vegetal (green pepper, and leafy, herbaceous aromas) in wines produced from less than ideally ripe fruit.

Cabernet Franc is also capable of delivering a set of earthy aromas—pencil shavings, graphite, and a certain smoke-like aroma (irreverently described by some as 'ashtray'). In terms of fruit, Cabernet Franc tends more to the red than the black and typically displays raspberry notes and, occasionally, strawberry.

In the Mouth

Cabernet Franc grown in its native regions can occasionally strike students as a relatively lean wine in terms of flavor and structure. It is rarely a powerful wine and is, classically, medium bodied with medium to high acidity.

On Zinfandel

If ever a grape has had difficulty establishing an identity for itself, it is Zinfandel. The grape has gone from solitary North American *vinifera* (which was always botanically impossible) to nearly-extinct-in-its-homeland Croatian derivative. It has found a brother in Croatia's Plavac Mali and an identical twin in Italy's Primitivo. It was consumed by '49ers (perhaps in a San Francisco saloon). It represented California's clout before Prohibition and seemed on the verge of becoming the everyday wine of the nation before the 18th Amendment to the US Constitution shut down the nation's legal watering holes. Still, it managed to survive by satisfying home winemakers, bootleggers, and the church before being dragged back into service in the 1970s to produce one of the world's most successful and scandalous pink wines: White Zinfandel. Recently, at the height of Zinfandel's return to respectability, it was proposed as California's official state grape. The motion was defeated.

To say that Zinfandel has led a colorful life is an understatement.

In the World

Primary Growing Areas

To those interested in grape origins, Zinfandel has always been something of a mystery—an important grape with a long history in the United States, but apparently no history anywhere else. This incongruity fueled all kinds of speculation until recent DNA testing proved that Zinfandel is identical to a nearly extinct Croatian variety known as Crljenak Kostelanski. Likely imported to the United States in the 1820s, Zinfandel was well-established in California by the 1850s where it proceeded to become far more important than it ever was in its Croatian homeland.

Zinfandel is widely dispersed in California's warmer regions. For bulk production, it has long been a mainstay in regions beyond the limits of significant Pacific influence such as Amador County, the Sierra Foothills, and the San Joaquin Valley.

Arguably the highest quality Zinfandel, however, derives from California's blue chip region of Sonoma County. It is in the warm valleys of Sonoma—Dry Creek, especially, but

Mapping Zinfandel

Map 18: West Coast North American Regions

Map 8: Wine Regions of Italy

See Also

Map 19: California's North Coast

also the warmer eastern vineyards along the Russian River—that Zinfandel has truly shone.

The heel of Italy's boot has been Zinfandel's primary European outpost for over a century. The warm Mediterranean peninsula of Apulia (or Puglia) grows Zinfandel as Primitivo and has produced some impressive expressions of the grape.

Secondary Growing Areas

For such a mysterious grape, Zinfandel is planted in a surprising number of different nations and regions. It should, however, be stressed that only California and Apulia have developed any sort of regional identities around the grape.

Several other American states, such as New Mexico, Arizona, Colorado and Texas have produced fine expressions of Zinfandel, and there have been excellent, small production wines from South Australia and Mexico.

In the Vineyard

Many of the qualitative differences that Zinfandel can display—from cheap and cheerful, off-dry pink wine to serious, high alcohol, explosively fruity wine—can be traced to decisions made in the vineyard. Though it is widely planted in California, Zinfandel can be a difficult variety to grow.

What is most important for a late ripening variety like Zinfandel is a mercifully long growing season. California's bulk producing areas certainly provide that, but Zinfandel doesn't respond well to consistently warm conditions. Like many varieties, Zinfandel prefers, at the very least, cool evening temperatures after the warm days to preserve the balance in the berries.

Soil is also important in deciding where to plant Zinfandel. Zinfandel's susceptibility to bunch rot in moist conditions means that dry, well-drained soils are best for the variety. California is blessed with some very old vines planted in sandy or stony soil, suggesting that dry soils also conspire to increase the vine's longevity.

Even with ideal conditions, however, Zinfandel is a notoriously uneven ripener, often producing a mix of tart green berries, fully ripe berries, and raisins on the same bunch. Some romantics have asserted that bunches with this profile ultimately balance themselves, but growers interested in producing high quality wine are increasingly opting for careful selection of bunches and berries in the winery, or multiple passes through the vineyard at harvest in search of properly ripe fruit. Ripe Zinfandel berries turn quite rapidly to raisins, so good management of harvest schedules is crucial.

In the Winery

One of the great attractions Zinfandel has exercised on the California wine industry is its extraordinary versatility. An argument can also be made that one of the things that has retarded the evolution of Zinfandel in the minds of consumers of California wine is its extraordinary versatility.

Zinfandel is made into a range of wines from pink to cheerfully red to seriously red to fortified. Though there are serious producers of all of these styles, many have tended to treat Zinfandel with a cavalier attitude that has managed to work its way into consumer consciousness.

Zinfandel, so it goes, is a humble grape. Where the noble French grapes (Cabernet Sauvignon and Chardonnay, for example) received the winemaker's full attentions and were outfitted in the expensive wardrobe of new French oak, Zinfandel was dressed by the assistant in discount hand-me-downs.

This Cinderella-like narrative does not apply to all producers, nor does it, today, apply to most. A range of serious, carefully made, expensively dressed expressions of Zinfandel began to appear through the 1980s and 1990s, and spawned an almost cultish market for the finest wines—especially for those sourced from some of California's oldest vines.

In the Glass

Zinfandel's diversity of style can complicate the process of identification for novice tasters. However, among its red wine expressions, Zinfandel possesses a unity of aromatics, so that even beginning tasters tend to catch hold of the wine in a short time.

In terms of color, Zinfandel is rarely an extremely dark wine, tending instead to ruby and, occasionally, a pale ruby at that.

But what binds diverse red Zinfandels together more than the wine's appearance is its typically intense nose of various dark fruits. So various is this mix that many tasters latch on to catch-all categories like 'fruit compote' or, exotically, 'bramble berry.' Raspberry, black currant, plum and mulberry may all be part of this fruit compote and, especially when the vintage or vineyard has been warm, there may be a dried or raisiny quality to the fruit. In support of the fruitiness of the variety, we often also find notes of chocolate and black tea.

In the Mouth

Zinfandel's intense nose is often supported by an equally intense palate. Notoriously high in alcohol but typically soft of tannin and acidity, this relatively loose structure can emphasize Zinfandel's primary fruit and suggest some residual sugar, even in dry wines.

Though most Zinfandel is consumed on release, the finest examples are suitable for mid-term aging. It is an open debate, however, whether the bottle maturation of Zinfandel is a good thing. Many believe that Zinfandel is most charming when its fruit is most intense.

On Gamay

If ever a grape has had to fight for respect, it is Gamay. Spawn of a chance meeting between noble Pinot Noir and peasant Gouais Blanc (so DNA research tells us), Gamay first began to appear in French vineyards in the 14th century. To the horror of everyone but the farmers, Gamay began to replace the more difficult to grow Pinot Noir. One famous 15th century commentator described the grape as *"méchante et desloyale"* or 'evil and unfaithful' and ordered that it all be uprooted from the better vineyard sites.

But the grape was a success, if we measure a grape's success by the quantity of land in which it has rooted—so successful that in at least one region, it was developed into a vast wine industry that persists to this day. The unloved bastard grape had made good.

For all of the street credibility the grape had managed to earn during its long ascent, however, the wine it made had few of the qualities that confer admiration among most serious wine drinkers. It seemed to lack seriousness. It didn't age well, wasn't particularly complex. It was popular, to be sure, so popular that people lined up to get their hands on one of its expressions every November. If it was a star, it was, at best, a bubblegum cracking pop star.

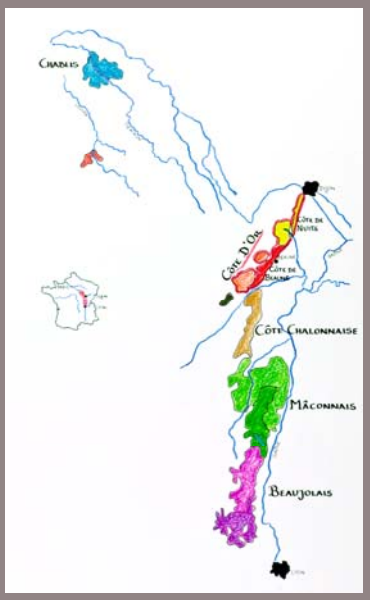
In the World

Primary Growing Regions

Gamay, or *Gamay Noir à Jus Blanc* as it is properly known, is not a grape with a large geographical range. True, there are small pockets of Gamay to be found far away from its French homeland—in California, along Canada's Niagara Peninsula. But among major varieties, Gamay has a unique localness, which translates into an identifiably regional style.

This offspring of Pinot Noir grows near to its parent, though typically further south in the Burgundian region of Beaujolais. This region of rolling hills is located in east central France near to the foothills of France's central mountains or *Massif Central*. At one time, Gamay was planted further north in the now Pinot Noir dominated vineyards of the Côte d'Or, but economics and the lure of

Mapping Gamay



Map 3: Burgundy

Map 4: Loire River Valley

See Also

Map 1: Wine Regions of France

quality has pushed the vine south. There are, however, small pockets to be found north of the Beaujolais region, but Beaujolais is also now the grape's universally acknowledged home. Here the poor granite, schist, and limestone soils of the upper or Haute Beaujolais produce Gamay's finest expressions.

Secondary Growing Regions

Elsewhere in France, Gamay has considerable importance in the Loire Valley, where it contributes to the popular table and country wines of the region. The area around the city of Tours has been successful with simple, easy-drinking varietal wines.

Success with Gamay has also been found in Switzerland, where its early-ripening is appealing, and where the variety is often blended with Pinot Noir in a strange sort of mother-and-child-reunion to produce a wine commonly known as Dôle. A similar blend is produced in Burgundy where it is known as Passe-tout-Grains.

In the Vineyard

The things that tend to upset defenders of quality wine—or, really, defenders of Pinot Noir—are the same things that tend to endear Gamay to grape farmers. Gamay is fairly easy to grow and yields very generously. But in the world of quality wine, productivity rarely generates respect.

Early budding, flowering, and ripening, Gamay is best suited to relatively cool climates (even though spring frost is a risk) and relatively poor soils which can naturally restrain some of Gamay's robust growth habits. In Gamay's most celebrated growing region, poor soils of sandy granite, schist, and limestone combine with severe pruning and training the vine into a bush or *Gobelet*-shaped vine to limit yields, increase concentration in the fruit, and produce wines of high quality.

Like its parent, Gamay is also susceptible to gray rot in wet or humid conditions, though its comparatively tougher skins make it a less likely victim than Pinot Noir.

In the Winery

Perhaps no other red grape is undergoing a more serious re-evaluation in the winery than Gamay. It has long been a convenience to tie Gamay to a particular vinification technique—a version of carbonic maceration—and ignore the fact that some wines from the grape are made using standard red wine vinification techniques. But Gamay has been losing out in the wine fashion wars and has had to change the cut of its clothes to try to remain relevant.

Increasingly, the Gamay wines of Beaujolais are made using the same, standard techniques applied to its parent, Pinot Noir. The relative delicacy of both varieties suggests the gentler side of red wine making—gentle crushing, small batch fermentation with *pigeage*, gentle pressing, and maturation of the wine in seasoned barrels so as not to overwhelm the subtle red fruit aromas.

It remains true, however, that most Gamay—and this means, really, most Beaujolais—is produced using the local variant of carbonic maceration. Quick, inexpensive, and rarely used for fine wine outside of Beaujolais, this technique is designed to de-emphasize Gamay's high acidity and tannin, and highlight the grape's attractive red fruits.

As a technique, carbonic maceration is much as it sounds: it consists of blanketing whole bunches of grapes in carbon dioxide. Within this oxygen-free environment, the grapes undergo a unique, intra-cellular fermentation which produces a soft, low alcohol wine, often with candied flavors.

The approach to this technique in Beaujolais has always been of the partial variety. In a large vat filled with grapes, the weight of the upper bunches crushes the lower bunches, which then undergo a normal alcoholic fermentation producing alcohol and carbon dioxide. The vat is closed so that the carbon dioxide cannot escape and it blankets the upper, uncrushed bunches which undergo the intra-cellular fermentation. The result, when the juice is pressed out of the skins, is a moderately tannic, moderately acidic wine with unique aromas which can be sent to market almost immediately following fermentation. Thus, Beaujolais Nouveau, released on the third Thursday in November of the vintage year.

In the Glass

In almost every respect, Gamay is one of the easiest red wines to identify, particularly if the grapes have undergone carbonic maceration. The lack of exposure to oxygen typically preserves the grape's color so that Gamay appears with an intense, bluish-purple core.

On the nose, whatever the fermentation technique, Gamay is a red-fruited variety and offers primary fruit aromas of strawberry, cherry and raspberry supported by a very occasional pepperiness. Carbonic maceration can add other aromas—banana, candied pear, strawberry jam—and, when things have gone somewhat awry, a burnt rubber or acetone smell.

Gamay which has been fermented and matured *a la* Pinot Noir can resemble a lighter, less substantial version of its parent and, quite frankly, can complicate things for tasters in blind situations.

Though traditional red wine fermentation can provide Gamay with the tannic and acidic structure to mature over the short term, bottle maturation does little to enhance the wines. Most Gamay-based wines, therefore, are designed for early drinking.

In the Mouth

On the palate, Gamay is rarely a challenging variety. Tannins are typically low to medium and acidity ranges from medium to high. Because of it structure, Gamay is often served at relatively cool temperatures which best emphasizes its fresh and simple fruitiness.

On Sparkling Wine

Wine with bubbles constitutes one of the largest classes of wine, and just about every country and every region has a local specialty sparkling wine. But styles of sparkling wine vary widely from place to place and for several reasons. Climates vary, grape varieties differ. But often the most important influence on the flavor and quality of the finished wine is the method in which it is made.

There are several methods for getting (or keeping) bubbles in a bottle. What follows is an outline of the four most popular techniques. Keep in mind that the first method we describe—the traditional method—is the foundational method. All of the other methods diverge from the traditional method at some point, so knowing the steps in the traditional method is of great importance.

On Making Sparkling Wine

Traditional Method

The traditional method—also known as *méthode Champenoise*—is responsible for the world's finest and longest lived sparkling wines. This method is also the most time-consuming, labor-intensive, and consequently expensive.

Step 1: First Fermentation

After grapes are harvested and gently pressed, juice is fermented in the standard style for white wine—usually in stainless steel tanks, but occasionally in oak barrels. The base wine produced at this stage would make a very unpleasant table wine. Grapes used to produce traditional method sparkling wines are harvested when sugars are low and acids high.

Step 2: Assemblage

Base wines from many different vineyards, several different grape varieties and, potentially, several different vintages are then blended to produce what is called the *assemblage*. This is, for many, the most important stage in the whole process. The most familiar style of traditional method sparkling wine is the standard, non-vintage, house blend, and the skill of the blender is called upon to produce a consistent product year in and year out.

Step 3: Tirage

When the blend has been created, a mixture containing wine, sugar, and yeast is added to the wine in the tank. This mixture is known as *liqueur de tirage* and because it contains both sugar and yeast, it has all of the material necessary to cause the wine to begin fermenting once more.

Step 4: Bottling

When the *liqueur de triage* has been dipersed throughout the tank, the wine is put into heavy glass bottles and sealed, typically with bottle or 'crown' caps. It is important to note that when you buy a bottle of traditional method sparkling wine, the wine you buy will not have left that bottle from this point in the process forward.

Step 5: Second Fermentation

The yeast and sugar contained in the *liqueur de triage* cause the wine to ferment inside the bottle. As we know, fermentation creates both alcohol and carbon dioxide and with nowhere to go in the sealed bottle, the carbon dioxide is dissolved into the wine, creating a wine with bubbles.

Step 6: Aging

Just as carbon dioxide is trapped inside the wine, so are the yeast cells. After second fermentation is complete, the yeast cells die and settle to form lees. The bottles are laid on their sides and, over time, the dead yeasts break down (this process is known as autolysis) and contribute a unique set of bready flavors to the wine. The length of time the wine spends in contact with the lees says much about how the wine will taste later.

Step 7: Remuage (Riddling)

For cosmetic reasons, all traditional method producers remove the lees from the wine before it is sent to market. Removing these lees is an involved, two-step process which begins with *remuage* or 'riddling' in English. Traditional *remuage* involves the gentle agitation and shifting of bottles from a horizontal to a vertical position in order to move the lees from the side of the bottle to the neck. This was traditionally done by hand, a process which took approximately six weeks. Most modern producers now use large machines called gyropalettes to perform this operation in about three days.

Step 8: Disgorgement

When the lees have reached the neck of the bottle, they will be removed in a process known as *dégorgement* in French, disgorgement in English. Traditionally, the crown cap was popped off and the dead yeasts ejected by the pressure inside the bottle. Today, the neck of the bottle is often frozen before the cap is removed and the lees frozen to a sort of plug with a gelato-like consistency which will shoot out of the bottle when the cap is removed.

Step 9: Dosage

Because a small amount of wine is lost in the process of disgorgement, the bottle must be topped up with wine before the bottle is sealed with a cork. The wine that is added may be mixed with varying amounts of cane sugar, depending on the style of champagne to be made. The added wine is known as the *liqueur d'expedition* and the process itself is called *dosage*. The wine is then corked and the cork fixed with a wire cage to keep the cork from shooting out of the bottle under pressure.

Transfer Method

This method is closest to the techniques and to the spirit of the traditional method, but avoids the time consuming and expensive process of riddling and disgorgement of individual bottles. In the transfer method, the wines undergo a second fermentation in bottle, mature on the lees, but then are disgorged in bulk, the entire contents, lees and all, sent to a pressurized tank. The wine is then filtered to remove the lees and bottled in fresh bottles.

This technique, while not common, is used in most sparkling wine producing countries.

Tank Method

The tank method is also known as *cuve close* or as the Charmat method. Eugene Charmat is the French gentleman who developed the process around the turn of the century. In the tank method, the second fermentation takes place in a sealed tank, rather than in individual bottles. The wine is then filtered and bottled. The tank method is considerably less expensive and less time consuming than the traditional method, but does not produce as fine a wine. That said, by far the greatest percentage of wine with bubbles consumed on earth is produced using variations of this method.

Wines produced using the tank method include popular Italian wines such as Prosecco, Asti, and Moscato d'Asti, as well as much German sparkling wine labeled Sekt.

Carbonation

Carbonation is the least expensive method for producing sparkling wine, but produces the poorest quality wines. The process of carbonation is relatively simple: carbon dioxide is injected into the wine and the wine bottled under pressure.

On Traditional Method Wines

Because the traditional method produces the finest of the world's sparkling wines, it is important to have a passing familiarity with some of the fine regional wines which exemplify the method. Many countries make fine traditional method sparkling wine—Australia, South Africa (their Cap Classique is justly famous) and California (where many Champagne and Cava houses set up shop beginning in the 1970s). We provide here, however, brief introductions to Champagne and Cava.

On Champagne

Champagne is so important to the world of sparkling wine that the word is often popularly used to describe all wine with bubbles. If it fizzes, it is Champagne.

In reality, of course, Champagne is a wine region located in northern France. Only wines produced from grapes grown in this region and only wines produced using the traditional method are legally entitled to be labeled Champagne.

The region is unique. The soils are chalky and infertile, the climate is cold and Continental—too cold, really, to produce decent quality still wine on a regular basis. It was discovered early on that wines made there often weren't able to finish their fermentations before temperatures got cold. Yeasts went dormant over the winter and when they restarted in the spring, they contributed a light fizz to the wines. At first, this was looked on with horror, but soon these fizzy wines became popular and gave rise to what would become a genuine industry by the late 1700s.

Champagne is produced in many different styles, but only from three grape varieties: Pinot Noir, Chardonnay, and Pinot Meunier. Both of the Pinot grapes are black varieties and in order to produce a white wine from them, they are gently pressed immediately after harvest to avoid contact of the juice with the skins.

Champagne Styles

Non-Vintage Brut

The most familiar dry style to most drinkers, this is also sometimes known as the 'house blend.' Each producer has its own unique style.

Vintage

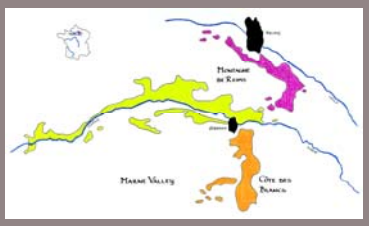
Expensive (usually) and uncommon, vintage Champagne is only produced in exceptional years and its production is strictly controlled and monitored.

Blanc de blancs

Wines produced exclusively from the region's only permitted white grape: Chardonnay.

Mapping Champagne

Map 1: Wine Regions of France



Map 7: Champagne

Blanc de noirs

Wines produced exclusively from black grapes.

Rosé

Pink wines, today usually produced by blending red and white base wines.

Brut

Brut describes dry wines, and is the most common level of sweetness found in the wines of Champagne.

Demi-Sec

An occasionally seen sweet style of Champagne.

Cuvée de Prestige

The top wine of a Champagne house.

On Cava

If Champagne has a significant rival in the world of sparkling wines, it is Cava. Essentially Spain's answer to and open imitation of Champagne (Cava was known as *Champaña* until recently), Cava is often seen as an inexpensive alternative to Champagne.

Most Cava is produced in the high altitude vineyards of the Penedès region of Catalonia. The grape options producers have for Cava production are far more liberal than in Champagne, but many of the finest are produced using native Spanish varieties such as Viura, Parellada, and Xarel-lo.

Cava producers, beginning in the 19th century, focused much of their attention on making a good product in an economically sustainable way, and much of the technical development which has taken place over the last century in the industry can be linked to Spanish innovation.

Today, the Cava industry dwarfs that of Champagne in terms of volumes produced. And though many markets never get to experience the finest Cava, many rival the best of Champagne.

On Serving and Storing Sparkling Wine

Sparkling wine is perhaps the most versatile of all wines and can be served as an *aperitif*, as a companion to most foods, and as a *digestif*. The diversity of styles, from dry to sweet, and the inherent structure of the wine even allow for multi-course, Champagne-only dinners.

Producers in Champagne argue that Champagne can be stored upright, given the pressure within the bottle. Most Champagne will last well in bottle for a few years with the finest improving in measurable ways, taking on more nutty, toasty flavors. Sparkling wines produced by other methods, however, should be consumed young.

On Fortified Wine

Fortified wines reached their highest levels of popularity among consumers during the 19th century, but remain an important part of the wine and hospitality industries. The reasons for their decline in popularity are topics for another day, and for now, we simply want to understand what they are, how they are made, and how they should be consumed.

When we think about fortified wines, we sometimes picture gout-stricken old men getting soused on Port while reading Shakespeare or elderly spinsters sipping a wee glass of Sherry before tucking into a Sunday roast. So it sometimes comes as a surprise to students to learn that fortified wines are relatively recent innovations in the wine world. The ancients drank no fortified wine, nor did the Greeks or the Romans. This is so because making fortified wine requires access to technology which emerged later, likely around the 10th or 11th century. The technique on which fortified wine depends is known as 'distillation.'

So what is fortified wine? The most basic definition is as follows: fortified wine is wine which has had its alcohol level raised by the addition of distilled spirit. We might offer this alternative definition as well: a fortified wine is any wine which contains alcohol which is not the product of natural fermentation. Almost without exception, fortified wines have higher alcohol levels than their unfortified cousins—typically in the range of 15-20% alcohol.

No one is entirely certain when the first fortified wines were made, though we are reasonably certain that it was probably sometime between the 12th and 13th centuries. These dates make sense because they correspond to the period during which Arab physicians (or alchemists) introduced the art of distillation to Europe. Distillation, which separates ethanol from a liquid which already contains it (beer or wine for example) and then concentrates it, was seen as an enormously important technique in the medical community of the time. Liquids with high alcohol contents were powerful antiseptics and helped to save people from developing serious infections.

The wines of the time were far less stable than they are today and had very short shelf lives. Though no one knew exactly why wine spoiled so quickly, it was a small imaginative leap for those in the wine business to believe that if alcohol could protected the wounded against infection, it might also protect their wines against infection. Thus, fortified wine was born.

The wines to which alcohol was added were more stable when they were shipped and lasted far longer than their unfortified cousins.

On Making Fortified Wine

Given what we've just outlined, it might barely seem reasonable to talk about technique: you have wine, you add alcohol and, poof, you've got fortified wine. Though this is basically true, there are two common and different methods for making fortified wine and their difference has everything to do with when the distillate is added to the wine. For convenience, we can call them the Sherry method and the Port method.

In the Sherry method, the distillate is added to the wine after it has fermented all the way to dryness. The yeasts have done their work. The sugar is all gone, transformed into alcohol, and the added alcohol stabilizes and protects the wine so that it can begin its maturation.

In the Port method, the distillate is added to the wine part way through the fermentation. The yeasts have converted some of the sugar to alcohol, but the wine is still quite sweet. Adding alcohol at this point kills the yeasts so that whatever sugar they haven't yet converted into alcohol remains in the wine. Because the added distillate stops the yeasts in their tracks, this is typically known as an 'arrested fermentation.'

On Port

Port is one of the most popular of the world's many fortified wines. Though several countries produce wines mischievously labeled 'Port,' true Port comes only from the Douro Valley region of Portugal.

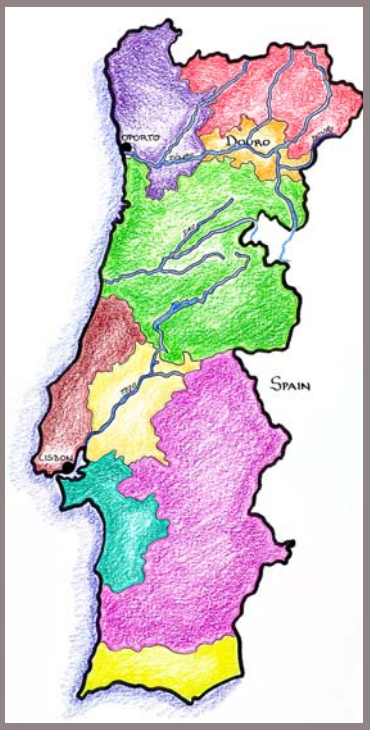
The Douro region is both forbidding and beautiful, as extreme places often are. Many of the grapes for Port are grown on steep slopes above the Douro, or on equally steep slopes on one of the Douro's several important tributaries. The region is large and is located in north eastern Portugal extending all the way to the Spanish border. Because it is a large area, the climate is somewhat variable, ranging from broadly Maritime in the west to extreme Continental in the east. Days can be blisteringly hot and nights cool. Summers can be wretchedly dry, and winters bitingly cold.

The soils in the better vineyards are composed of a unique and quite rare crystalline rock known as schist. Schist is a layered or foliated rock which is quite easy to break up, even by hand (though the growers prefer dynamite). If you were to imagine cutting into a pastry made from sheets of phyllo dough, it would give you a reasonably good idea of what schist is like. Marginally fertile, loose textured, and free draining, schist is an excellent soil in which to grow grapes.

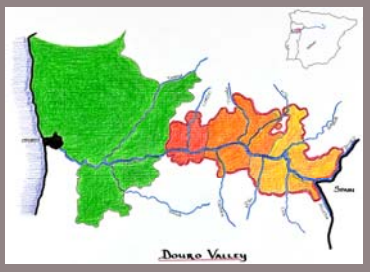
Port is a blended wine and, historically, it has been something of a free-for-all blend. There are about 80 varieties permitted to be used and in the past, the vineyards of the Douro were often planted with many different varieties, such that even the growers didn't know exactly what they were. In recent years, however, Port producers have taken pains to identify their better varieties and have begun to focus their attention on a handful of grapes they believe have the capacity to make the finest wines.

The variety which has generated the most excitement is known as Touriga Nacional. This is not an easy grape to grow, and it is not yet widely planted in the Douro. However, its combination of deep color, high tannin and high acidity makes it much valued for Port, which needs these preservative and structuring elements to help it

Mapping Port



Map 13: Wine Regions of Portugal



Map 14: Douro River Valley

negotiate its often long maturation period. Touriga Nacional is not all about structure, though. It also provides rich fruit flavors of mulberry and other black berries, as well as floral and licorice-like qualities.

On Making Port

Traditional Port making can seem positively quaint to us in our high-tech modernity. But the techniques which have been traditionally used to make this wine have their basis in the fundamental question which confronts everyone who makes Port: if you are only going to ferment the wine for a short period of time before arresting the fermentation with spirit, how do you get all of the tannin and color out of the grapes so that the wine can age for long periods of time?

The traditional answer had everything to do with the feet. After the grapes are harvested, they are brought to the winery and dumped into shallow basins known as *lagares*. These basins, or troughs, are typically formed of stone—granite, marble, concrete. A team of people then climb into the *lagar* and begin to tread the grapes. The foot-treading of the grapes will continue while the grapes ferment. The beauty of this technique is that it is at once gentle, aggressive, and fast and serves to extract abundant color, tannin, and flavor from the berries.

Fermentation typically lasts only three or four days, or until approximately one third of the sugar in the must has been converted to alcohol. The must is then pressed and run off into vats containing a neutral spirit which will stop the fermentation by raising the alcohol level to approximately 18-20 %. The spirit used in Portugal is known as *Aguardiente*, a neutral Portuguese brandy.

The result of all of this is a sweet, high alcohol young wine ready to be shaped by a cellar master into one of the many different styles of Port.

On Port Styles

All Port begins its life in roughly the same way. However, a quick trip through your local wine shop should be enough to indicate that there are many different styles of Port—Ruby, Tawny, Vintage. The differences between these Ports really have little to do with how they are fermented and fortified. Instead, they have most to do with how the wine is matured.

Though we can't deal with all of the different styles of Port in this chapter, we do want to discuss a handful of the major styles. We also want to suggest a couple of different ways of categorizing the different styles in order to make them easier to understand.

One way to think of Port is in terms of color. Some ports resemble young red wines and offer up deep ruby, or purple-ruby colors. If we lumped all of the Ports which have this characteristic together, we would have what are sometimes called 'Ruby Category Ports.' Other Ports have a decidedly brown cast to their color—a color usually described as 'tawny, in the Port industry. If we lumped all of these brownish Ports together, we have what are sometimes called 'Tawny Category Ports.'

These Ports also differ in their basic taste profiles. Ruby Ports tend to be generously fruity in character. Tawny Ports, on the other hand, take on their color and their taste profile after long aging in barrels. Their flavors tend to be more akin to nuts and dried fruits.

Though we don't want to make your introduction to Port needlessly complicated, there is another popular way to categorize the various Port styles with which you should be familiar. Much Port is bottled after it has been matured for several years in some form of cask—usually an old, neutral barrel. These Ports are bottled when they are ready-to-drink and do not benefit from further maturation in the bottle. Ports in this category are easy to identify because they are sealed with stopper-corks which can be removed by hand rather than full, or 'driven' corks for which corkscrews are required. Because these Ports have been matured before bottling, they are typically described as 'Cask Matured Ports.'

A much smaller number of Ports receive shorter maturation times at the winery and are bottled with the understanding that they should be matured further in the bottle. These Ports are also easy to identify because they are bottled with full or driven corks. The better protective seal provided by these corks is necessary so that the wines can be laid on their sides during their maturation. For convenience, these Ports are often referred to as 'Bottle Matured Ports.'

What follows is a list of the most popular styles of Port.

Vintage Port

Vintage Port seems to get all the press, but it represents a miniscule percentage of the Port industry. Nevertheless, fine restaurants all over the world compete to get their hands on the greatest Ports from the finest vintages in order to offer their guests truly unique wine drinking experiences.

Unlike most Port, Vintage Port is made exclusively from the grapes of a single, exceptional year. These wines are not produced every year and are only available in limited quantities. The process for getting a Vintage Port to market can be complicated, because producers must effectively apply to the Port Wine Institute, which regulates the Port industry, for the privilege of releasing the wine. This process is known as "Declaration"—and this is what is meant when it said that this or that producer has decided to 'Declare a Vintage.'

Though it is complicated to get one of these Ports to market, Vintage Ports are ultimately some of the easiest for producers to make. Following the standard vinification and fortification, Vintage Ports are matured for 2-3 years in neutral vessels before they are bottled without filtration. Though there are exceptions to this rule, most Vintage Ports are then matured in their bottles for 15+ years before they are opened. These Ports throw substantial sediment and must be decanted through a special device known as a 'Port strainer' before service.

High in tannin and acid and deep ruby in color, these unique wines would into the Bottle Matured category of Ports. They also, because of their color, will fit into the category of Ruby Ports.

Late-Bottled Vintage Port

Vintage Port is wonderful to drink, but it is also expensive. For that matter, many Port lovers simply don't have the appropriate cellar in which to store Vintage Port. A much cheaper alternative to these expensive, high maintenance Ports, is a wine rather clunkily known as Late-Bottled Vintage Port. LBV, as it is popularly called, arrives on the market ready-to drink and at a modest price.

The first LBVs were made in the late 1960s when producers found themselves with more Vintage Port than they could sell. When they were finally able to bottle their wine the 2-3 year window which

would have allowed them to call their wine Vintage Port had passed. Thus was born Late-Bottled Vintage Port. It is still a Port made from grapes from a single vintage. But it is bottled later than Vintage Port.

In practice today, these wines are a step below Vintage Port as far as the quality of the fruit used in their production, but they can be wonderful and are very important to the restaurant industry, especially for by-the-glass sales. After 4-6 years in cask, these wines are filtered and bottled. They do not need to be decanted before service.

Because these wines exhibit deep ruby colors, they fit into the category of Ruby Ports. And because they are bottled ready-to-drink after maturation in the winery, they are considered to be members of the Cask Matured Port family.

Ruby Port

Ruby is both a *category* of Port (all the ruby and purple ones) and a *style* of Port which is labeled, not surprisingly, Ruby Port. The latter is what we are considering here.

Ruby Port is really the most basic of all of the Port styles, and it is also the most popular in the global market. Inexpensive, versatile and ready-to-drink on release, Ruby Ports are non-vintage wines blended from products from several different recent years. Producers try to maintain a sort of house style in these basic wines to satisfy consumers looking for reliable and familiar wines. They are stored in cask at the winery for several years, filtered, and sent off into the world.

Tawny Port

Like Ruby, Tawny Port is both a *category* (all the brownish ones) and a *style* of Port. As a style, it is Ruby's brownish counterpart, occupying the bottom level of the Port quality ladder, but the top in terms of popularity in the global market.

Though in theory Tawny Port takes on its characteristic tawny color through years of aging in barrels, most of the inexpensive basic tawnies are blends of red and white wine which approximates the tawny color. Like basic Ruby, it is a blend of wines from several vintages. It is filtered and bottled ready-to-drink.

Tawny Ports with Indication of Age

Some Tawny Ports are taken more seriously. These wines are made with high quality fruit and are carefully matured for many years at the winery. Within the Port industry they are sometimes described as 'true' tawnies. Though they are blended wines coming from a number of different vintages, they are labeled with an approximation of the average age of the wines in the blend. There is a graduated quality and price scale which moves from ten year old to twenty, thirty, and forty.

In price and in quality, these wines are every bit the equal of Vintage Ports. They are bottled ready-to-drink.

Colheita

The term 'Colheita' means 'vintage' or 'harvest' and is used to describe vintage dated tawny ports. These wines are fairly rare, and they are also, like age-dated Tawny Port, of very high quality.

On Drinking Port

Port is above all a dessert and meditation wine, but that is not to say that there aren't other places where it can fit in nicely.

A glass of Port on a cold winter night while thoughts of mortality and loss come rushing forth is something of a tradition in some of the earth's chillier regions. But Port is also a fine companion for sweet desserts (like fruitcake) and for some cheese. In England, the marriage of Port and Stilton has a long history.

Basic Ruby or Tawny Port is also a popular *apéritif* in some countries. And some adventurous Port drinkers, particularly in the United States, advocate drinking young Vintage Port with substantial cuts of meat.

On Sherry

Like Port, Sherry has seen its share of the beverage market decline in the 20th and 21st centuries. It remains, nevertheless, an important wine for the restaurant industry, and one which always seems on the verge of making a comeback. The last decade, which has seen a rise in fascination with the food and wine of Spain and a vogue for small plate or *tapas* style restaurants, has been a particularly robust period for the Sherry market.

Sherry is produced in the hot and arid southern Spanish province of Andalucia. Given the region's climate, it is likely that wines were first fortified simply to preserve them. Over time, the practice created a signature style for the wines of the region, attracted markets beyond Spain, and an industry developed. Three towns—which form what is sometimes called the 'Sherry triangle'—dominate the industry: Jerez de la Fronterra, Sanlucar de Barrameda, and Puerto de Santa Maria. It is in these principal towns that sherry is made and matured before bottling.

Inside the triangle (though it spills outside the lines) is where the grapes for Sherry are grown. Unlike Port, which has a shocking number of permitted grape varieties, Sherry is made almost exclusively with a single white variety: Palomino. Though Palomino does grow outside this region, Sherry country is where it sings loudest and best. Low in acid, thin-skinned, and neutral tasting, this variety has found a home in the chalky, white soil known as *albariza* which is found in the region's finest vineyards. Two other white varieties—Pedro Ximenez and Moscatel—are also used in making Sherry, though both are most commonly used as sweetening agents.

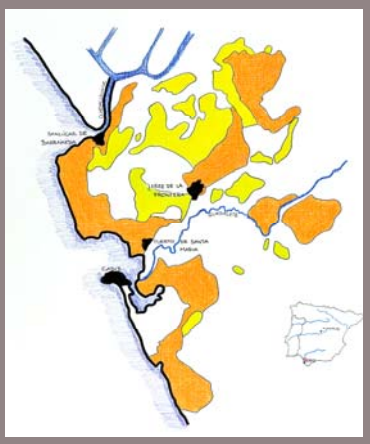
On Making Sherry

Much of what is interesting about making Sherry occurs during its maturation process—and in this, it very much resembles Port. And just as all Ports begin their lives in roughly the same way, so do all Sherries.

The basic process for making Sherry is relatively simple: thin-skinned Palomino grapes are hand harvested, pressed, and fermented to dryness using a standard white wine formula. The wines are then set aside and watched by the cellar master to see how they develop. Their early

Mapping Sherry

Map 11: Wine Regions of Spain



Map 12: Sherry

development will determine how they will be fortified. How they are fortified, in turn, determines how they will be matured. And how they are matured determines what style of Sherry they will be. Making Sherry, in other words, involves making a set of irrevocable decisions at key moments in the wine's life.

After the wines have fermented, they are set aside and observed by the cellar master. Regular tasting of the wines (and great experience) allows the master to predict how the wines will develop over the long term. But the cellar master is also looking for something physical in the wines—the development of a unique film-forming yeast described in Spain as *flor* or 'flower.' This yeast forms a whitish, scum-like layer which blooms (hence the name) atop the lightest and most delicate wines during their storage following fermentation.

If we paint the Sherry industry with fairly broad strokes, we can say that there are really only two broad classes of sherry: those produced from wines on which *flor* forms, and those produced from wines on which *flor* does not form. These two broad classes are known as Fino and Oloroso, respectively.

During the initial, post fermentation storage, the lightest most delicate wines on which *flor* has formed are selected to enter the Fino class and are fortified with spirit to approximately 15% alcohol, high enough to protect the wine, but low enough to allow the *flor* to continue to grow. The fuller, sturdier wines are selected to enter the Oloroso class and are fortified to approximately 18% alcohol, which guarantees that *flor* will never develop.

On the Solera System

We mentioned that much of what is interesting about Sherry has to do with the way in which it is matured. In fact, understanding the unique way in which Sherry is matured is perhaps the most important thing students can do before they enter the diverse world of this wine.

Producers in Sherry country mature their wines in what is known as a solera, a maturation system which developed likely in the 19th century in response to requests from consumers for more consistent products. Before the introduction of the solera system, Sherry was simply vintage wine, and like all vintage wine, it varied in taste and quality from year to year.

The solera system is a form of fractional blending (or 'dynamic aging') designed to create a remarkably consistent product. In order to understand how the system works, we can imagine a stack of barrels—say 3 rows with three barrels in each row. The oldest wine is on the bottom and the youngest on top.

When we decide that we want to bottle our Sherry, we will draw out some wine from the each barrel on the bottom row. The bottom row of barrels (which is known as the *solera*) is then topped up with wine from the barrels on the second row. This row, and the rows above it, is known as a *criadera* (or 'nursery'). When producers perform this operation, they make sure that each barrel on the bottom level is topped up with a little wine for *every* barrel on the second level. The barrels on the second level will then be replenished with wine from the barrels on the third level. And so on and so on.

There are, of course, many subtle variations to the basic outline I've provided here (as well as a whole Spanish vocabulary for the various tools and techniques involved), but for now, understanding the nature of this fractional blending is sufficient.

On Fino Class Sherry

Fino class Sherry is defined by the presence of *flor* during its maturation in a solera.

Flor, as we've mentioned, is a sort of yeast which forms on the surface of some wines produced in this region. Wines which develop *flor* before they are fortified are directed toward the Fino Class of Sherry. Before they enter a solera, they are lightly fortified to about 15% alcohol. Fortifying to a higher degree would kill the *flor* and undermine the delicacy of the wines.

The presence of *flor* is important to the development of these wines. *Flor* forms a protective coating for the wines, preserving them against the invasion of bacteria, and the effects of oxidation. But *flor* also provides a recognizable set of flavors to the wines—herby scents, flavors of blanched almonds, and even occasionally a salty/briny quality. Not all *flor* is created equal, however, and so there are several styles of wine which fall into the general Fino Class.

Below, we provide descriptions of a trio of the most important Fino Class Sherries.

Fino

Fino is both a Class or Category of Sherry and a legal term defining a particular style.

Fino Sherries are the lightest and most delicate expressions of Sherry because they have been matured under the thickest coatings of *flor*. They emerge from the solera pale straw in color and with delicate briny aromas. They are served chilled and should be consumed very soon after opening.

Manzanilla

Manzanilla is a type of Fino Sherry matured in the town of Sanlucar de Barrameda. The seaside location of this town contributes to especially thick *flor* development and particularly intense aromas of brine and salty nuts. Paler even than Fino, Manzanilla is served well chilled and should be consumed immediately after opening.

Amontillado

Amontillado Sherry answers the question, 'What happens if the *flor* atop a Fino Sherry is allowed to fade and die?' The answer is that the wine becomes an Amontillado Sherry. The name means 'in the style of Montilla,' a town located to the east of the Sherry producing region which was historically known for this wine style.

An Amontillado Sherry is an aged Fino, one in which *flor* has been present for only a portion of its maturation. Because the protective *flor* has died away, these wines are darker in color and offer different aromatic profiles with more intense, nutty flavors. Though these wines should still be consumed soon after opening, they are generally sturdier than Fino or Manzanilla Sherries and may be served at slightly warmer temperatures.

On Oloroso Class Sherry

Oloroso Sherry is defined by the absence of *flor* during its maturation.

Sturdier, more robust wines are selected after fermentation and are fortified to approximately 18% alcohol, which will inhibit the growth of *flor*. In Spanish, *Oloroso* means 'fragrant,' and wines from the Oloroso Class do tend to be quite intense as far as their aromas are concerned. Without the protective covering of *flor*, these wines become thoroughly oxidized. They emerge from the solera brown in color with intense aromas of dried fruits, spices, and nuts.

Though these wines are sturdier than those from the Fino Class, they should, ideally be consumed fairly soon after opening.

On Sweetness in Sherry

The pictures we've painted here of Fino and Oloroso class Sherries might lead to the conclusion that all Sherry arrives on store shelves in bone dry form. This, of course, is far from true. However, it is true that all Sherry is fermented to dryness and matured while it is dry. If sweetness is added to Sherry, it is done so right before the wine is bottled.

Both Fino and Oloroso Sherries can have sweetness added to them, typically in the form of concentrated juice from Pedro Ximenez or Moscatel grapes. Many of these are labeled with proprietary brand names: Harvey's Bristol Cream, for example is a sweetened Oloroso.

We encourage you to peruse the Sherry selections at local wine shops to begin to develop a sense of the several different styles of sweetened Sherry. But always remember that these wines begin their journey to your table as either Fino or Oloroso Class Sherry.

On Drinking Sherry

Sherry has the unenviable distinction of being one of the world's most overlooked wines. It is also often thought of (at least among wine professionals) as one of the wine world's greatest values.

Though sweet Sherry is typically served as either an *aperitif* or a *digestif*, dry Sherry can be a fine companion with food. Fino and Manzanilla are often served with small portions of salty food—deep fried foods, Serrano ham, and a wide variety of other *tapas* like sardines, olives, and Marcona almonds. Oloroso Sherry, though more difficult to pair with food, can make a fine and traditional companion to consommé and some other light, intensely flavored soups as well as deep fried foods.

On Syrah

New wine drinkers are always surprised to learn that Syrah is a relative newcomer to the world of popular varietal wine. The variety itself is not new, of course. It was already a popular and highly esteemed variety in France in the 18th century. It is not particularly new in Australia either, to which it was likely imported in the early 1830s and renamed Shiraz.

The modern wine boom discovered other varieties first—Cabernet Sauvignon, Merlot, Pinot Noir—and it did so to such an extent that Syrah seemed to disappear from the varietal landscape until the 1970s when the seeds of its revival were planted. It was not until the 1990s, however, that Syrah plantings began to reflect the grape's quality and potential.

In the World

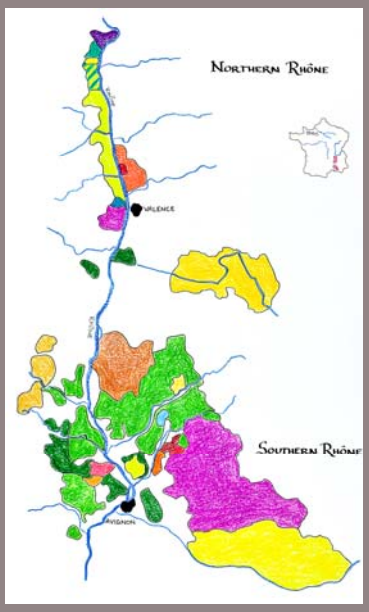
Primary Growing Areas

In English speaking countries, it is likely that more wine drinkers know Syrah in its Australian incarnation than in its French. But Syrah is a truly French grape, product of the natural crossing of two ancient grapes native to the eastern edge of France and near to where we find the grape's finest old world expressions today.

In France, Syrah's greatest reputation has been developed in the river-front vineyards of the northern Rhône River Valley. In the small appellations of Côte Rôtie, Hermitage, and Cornas, Syrah grows on often steep, dry slopes and terraces to produce densely concentrated wines whose longevity and complexity in maturity rivals the finest wines of Bordeaux. Syrah's growing popularity has also led to considerable new planting in the northern Rhône's less distinguished but more immediately approachable appellations of Crozes-Hermitage and St. Joseph.

Syrah is also increasingly important in the southern Rhône Valley where the grape provides structure, color, and aroma to the traditionally Grenache-based wines of the region. Syrah now forms an essential component in the blended wines of appellations such as Châteauneuf-du-Pape and Gigondas as well as the vast Côtes du Rhône designation.

Mapping Syrah



Map 5: Rhône River Valley

Map 23: Wine Regions of Australia

See Also

Map 18: West Coast North American Regions

Map 21: Wine Regions of South Africa

Syrah's greatest advance in recent years has been in the vineyards of the Languedoc-Roussillon (or Midi) where Syrah is one the several 'improving varieties' or *cépages améliorateur*. In a region prone to the overproduction of undistinguished wine from unfashionable varieties, Syrah has become something of a savior, and either alone or as a component in a blend, Syrah has done much to improve the Midi's fortunes.

It is, however, as Australia's most planted black grape that Syrah—as Shiraz—has found its greatest commercial success. Australia's approach to Shiraz is perhaps more varied than is France's, and the grape is used to produce everything from fortified, Port-style wine to red and pink sparklers to mass-produced 'critter' wine to exceptionally fine table wine.

The grape's large geographic penetration in Australia leads to diverse styles depending on growing conditions. The South Australian regions of Barossa and McLaren Vale, capable of both volume and quality and possessed of often very old vines have directed the variety's way on international markets. But impressive wines have also emerged from the Hunter Valley in New South Wales, Victoria, and Western Australia.

Elsewhere in the New World, Syrah's principal—though recent—success has been in the United States, particularly in California and Washington State. Syrah's success in these areas was notably later than it was for Cabernet Sauvignon or Merlot.

In California, the variety has found supporters in a loose bunch of marketing-savvy producers sometimes known as the Rhône Rangers. Their occasionally comic efforts have stimulated interest in the variety leading to impressive wines from several AVAs in California's north and central coasts.

Syrah's ascendancy in Washington State is even more recent and may be more a product of once-darling Merlot's difficulty surviving the Columbia Valley's often frigid winter temperatures. Syrah's surprising cold hardiness has led to a boom in planting all over the large valley.

Secondary Growing Areas

Within France, Syrah is also to be found east of the Rhône in the vineyards of Provence where it typically appears in blended wines with, among other grapes, Cabernet Sauvignon. Closer to the source of the Rhône in the Swiss Alps, Syrah can also be found in the vineyards of Savoie.

Elsewhere in Europe, Syrah's fortunes are on the rise in Spain, southern Portugal, and Italy. Southern Tuscany and Sicily, in particular, have produced very good wines, both from pure Syrah and from blends with native varieties like Sangiovese and Nero d'Avola.

In the New World, Syrah is increasingly successful—often with Australian help—all over the southern hemisphere. Post-apartheid South Africa is currently high on its Syrah learning curve and both Chile and Argentina are providing good and occasionally excellent varietal Syrah and blends.

In the Vineyard

One of the factors influencing the current flurry of Syrah plantings around the world is the relative ease with which the grape grows. It is also an appealing grape in terms of its potential economic return. At low yields, Syrah is capable of producing some of the world's most concentrated, long-

lived wines, but even at high yields, Syrah retains some of its character and can make attractively fruity wines.

Syrah is a late-budding, warmth-loving variety. It is not, however, terribly late-ripening, which can be a virtue in some cooler areas. Though it is sensitive to *coulure* in cool, wet weather at flowering, its late budding largely protects it in most of its traditional growing areas.

Syrah's traditional growing areas also protect it from the mildews and gray rot to which its tight bunches make it susceptible. The powerful Mistral wind, which blows down the Rhône Valley from the north, helps keep mildew spores from settling on the leaves and berries.

Gray rot's attraction to Syrah's berries indicates that a dry climate and dry soils serve the grape best. Syrah's finest expressions have typically come from free-draining, stony, heat-reflective soils of limestone or granite, but Syrah is adaptable to other soils such as, for example, schist and sandy loam, as long as they are well-drained.

In the Winery

The success of the Australian wine industry gives a good indication of Syrah's great versatility in the winery. Sparkling wines, light or powerful reds, rosés, fortified wines—all represent expressions of the grape in Australia.

But the reputation of Syrah is founded on its ability to produce powerful, well-structured red wines of great longevity and complexity of flavor. The northern Rhône leads by example in this area. There, Syrah is vinified using relatively simple techniques very similar to those of Bordeaux. Because of Syrah's excellent structure, it tends to have an affinity with small oak barrels. As money pours into the northern Rhône, those barrels are often new each vintage.

In the past, some found Syrah's structure too powerful, leading to the tradition in both Côte Rôtie and Hermitage of blending small quantities of white grapes or juice with the Syrah, at once lifting the aromatics of the wine and softening its structure. Australia has latched onto this practice and, following the Côte Rôtie model of blending Syrah with peach-scented Viognier grapes, now produces faddish (and often delicious) Shiraz-Viognier blends.

Syrah is also a crucial blending component in these and other regions, and whether acting as dominant or submissive, is valued for its structure, deep color, and pleasing aromatics. In France, California, and Australia, the grape's traditional blending partners include fellow Mediterranean varieties like Grenache, Mourvèdre, and Cinsault, but may also include Cabernet Sauvignon (common in Australia, rare, but delightful in Provence) and various regional specialties of Italy, Spain, and Portugal.

Australia's reputation for fine wine production has been immeasurably enhanced by the production of varietal Shiraz of a riper, fruitier style than that typically produced in France. Traditionally, but not at all exclusively, matured in American oak barrels, Australia's approach varies between mass production using rotary fermenters to small batch techniques borrowed from the Rhône and Burgundy.

In the Glass

Syrah is very much a variety capable of expressing the environmental conditions in which it is grown as well as the cultural choices made by the winemaker.

Syrah's abundant pigments lead to particularly deeply colored wines which, in youth, typically display opaque, inky-purple or black cores. Wine produced from high yielding vines, however, may lean toward ruby cores, even in youth.

On the nose, the finest northern Rhône Syrah offers a rich mix of black and red fruits, especially raspberry, blueberry, blackberry, plum, and black currant. These fruits are often supported by attractive floral aromas of violets and carnations and vegetal aromas of tobacco, black pepper, and a resinous or rosemary quality. For many tasters, however, it is the savory side of Syrah, produced through the interaction of wine and barrel, which provides a useful flavor anchor in notes of wood smoke, leather, and bacon.

Australian and, to a certain extent, American, versions of the grape tend to emphasize the primary fruit aromas of raspberry, blackberry, and plum over the savory side, but such is the diversity of styles from these countries that some wines can taste positively Rhône-ish. Australian Shiraz also often adds a suggestion of chocolate and mint or eucalyptus on the nose. With age, Syrah can take on an appealingly sexy bouquet of game meats and leather.

In the Mouth

On the palate, Syrah can range from brawny to soft, depending on the quality of the fruit. In poor vintages or from high yields, the grape can be unpleasantly dry and acidic, but quality expressions provide moderate acidity with medium to high tannins. Typically full of body, Syrah can provide a thick, ink-like texture in the mouth, especially when the grapes have been exceedingly ripe, as they often are in Australia's finest small-production wines.

On Grenache/Garnacha

Despite its wide geographical sweep, Grenache remains a surprisingly little-known variety in the English-speaking world. This may have more to do with the fact that Grenache rarely appears as a high quality varietal wine. Instead, the grape disappears into various blended wines whose geographical appellation names are more famous than the varieties used.

In the World

Primary Growing Areas

Grenache—as Garnacha—is originally a Spanish variety, and though it retains great importance in that country, France now seems to be the home of the grape.

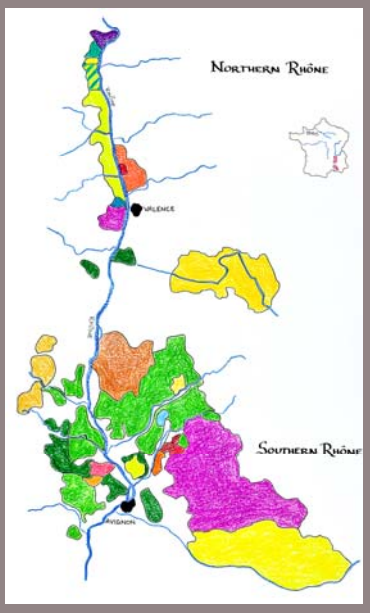
Within France, Grenache provides the alcoholic structure and clean aromatics of many of the wines of southern France. Even though it has begun to lose some of its leading player status to Syrah in some of the south's most famous wines, it remains the most widely planted variety.

It is in the southern Rhône Valley that Grenache has its greatest celebrity where it is usually the principal grape in the blended wines of Châteauneuf-du-Pape, Gigondas, Vacqueyras, and Côtes du Rhône-Villages. In these appellations Grenache can produce some of France's most savory wines and, when blended with a liberal dose of Syrah, can produce wines of considerable longevity as well. For earlier drinking, Grenache is also the primary grape of wines labeled Côtes du Rhône, one of France's most successful everyday wines for immediate consumption or short term cellaring.

To the south and west of the Rhône, Grenache is an important contributor to many of the appellations of the vast Midi—the region officially known as Languedoc-Roussillon, which extends from the western edge of the Rhône Valley to the Spanish border. The traditional producer of France's everyday wines, the region has responded to the decline in France's wine consumption by focusing on quality wines from better grape varieties. Even though Grenache has long been a component of the wines of the Languedoc-Roussillon, it is now considered one the region's 'improving varieties.'

Mapping Grenache

Map 11: Wine Regions of Spain



Map 5: Rhône River Valley

See Also

Map 1: Wine Regions of France

Map 8: Wine Regions of Italy

The Grenache of Spain is also planted in considerable volume, but it is its presence as a component in two of Spain's most sought-after red blends which has rescued the grape from its general Spanish decline. In Rioja, the high sugar levels and round texture Grenache achieves are important for bulking up the body of lighter Tempranillo. And in the tiny Catalonian region of Priorat, the often old vine Grenache contributes to some particularly intense and powerful wines.

Success in the New World has occurred in Australia above all, where some old vineyards are capable of producing exceptionally concentrated and occasionally frighteningly high alcohol wines. More appealing to most drinkers have been wines produced in the spirit of the southern Rhône–blends of Grenache with Shiraz and Mourvèdre. These wines—often simply labeled GSM—have a small but loyal following.

Secondary Growing Areas

Warmth-loving Grenache is quite widely planted around the Mediterranean basin. In France, both Provence and the island of Corsica have found success with the variety, as has the Italian island province of Sardinia. A Spanish possession from the early 15th until the early 18th century, when it came under the rulership of the House of Savoy, the Sardinian name for Grenache is Canonnau.

Grenache is quite widely planted in the warm regions of California and South Africa as well, but though there are a handful of varietal wines made, the grape has tended to find itself conscripted into fortified and jug wine production.

In the Vineyard

Given appropriate conditions, Grenache is an easy to manage vine, a fact which explains its popularity with growers. It is also a tough vine as far as its wood and constitution (it is remarkably able to withstand both heat and drought) and it possesses a pleasingly upright growth habit which makes it a popular choice for bush vine training.

As far as its fruit is concerned, however, Grenache is a fairly delicate variety. Loose of bunch, large of berry, but thin of skin, Grenache is susceptible to both powdery and downy mildews. The variety's early budding makes *coulure* an occasional issue and its late ripening simply limits where it can grow. Grenache is only successful in regions with long, warm growing seasons.

Grenache is blessed with neither abundant tannin nor abundant pigment, but low yields and careful vineyard management can encourage both. In the finest pure expressions of Grenache, the long, warm growing season is combined with strict pruning, well drained, often rocky soils and old vines to produce high alcohol, forwardly fruity wines.

In the Winery

One of the reasons for the extraordinary success of Grenache is its versatility. Few other black grapes are as amenable to blending as Grenache. There are fine—even outstanding—expressions of Grenache as a varietal wine, but they are quite rare. Far more common are exceptional blends of Grenache with its most common blending partners—Syrah, Tempranillo, Carignan, and the important Mediterranean red varieties Cinsault and Mourvèdre.

What Grenache typically lacks is structure, the bones of the wines on which the fleshy fruit flavors hang. Grenache's thin skins are short on both tannin and pigment, particularly when yields are high or vines are young, and the traditional blending partners supply this.

The variety is also—and for the same reasons—an easy oxidizer. In the past, it was rare to find a producer willing to risk the health of a varietal Grenache by putting it into a small barrel such as a Bordeaux *barrique*. More common were vast barrels of various sizes—often in the thousands of liters—known in France as *foudres*. The smaller total surface area of a large barrel (as opposed to many small ones) reduces the exchange between the wine and oxygen. Today it is more common to see Grenache matured in smaller barrels, a testament to better vineyard management, which provides more concentrated fruit, and cleaner winemaking techniques.

Grenache's low pigment and high sugar levels also lend themselves to the production of rosé and fortified wines. The generous fruitiness of the variety combines with the relative lack of pigment to make Grenache a much desired component in rosé blends in southern France, Spain, and elsewhere.

Grenache's capacity for high alcohol levels makes it a natural choice for fortified wines in the Rhône, Roussillon, Spain, Australia, California, and South Africa. High initial alcohol levels are an economic advantage to a producer contemplating the purchase of the fortifying distillate. Grenache forms the base of several important French fortifieds from both the Rhône and the Midi.

In the Glass

Grenache is a variety capable of offering occasionally intense and forward primary fruit aromas. If these aromas are combined with relatively pale color and high alcohol, then the variety can be relatively easy to identify. Not surprisingly, things get more complicated when Grenache is but one component in a blended wine.

Rarely dark of color, Grenache typically offers a pale ruby hue with aromas of raspberry, black cherry and, occasionally, black currant. In warm vintages—common in Grenache's primary growing regions—these fruits can take on a distinctly candied or confected quality.

Grenache also has a savory side and the best mature examples provide spice and earth notes including clove, allspice, coffee, leather, tar, licorice, and an attractive black olive or tapenade quality.

In the Mouth

Once again, descriptions of Grenache are complicated by the probability that tasters will encounter the grape as a component in a blend. But on its own, Grenache is typically low in both tannin and acidity with high alcohol levels.

Though many Grenache-based wines are designed for early consumption—the vast seas of Côtes du Rhône, for example—the very finest are capable of taking on a bouquet of spice and earth framing the durable raspberry and cherry fruitiness.

On Tempranillo

Given the current fascination with Tempranillo, it seems reasonable to say that the only thing that has held this grape back from exercising the kind of global authority enjoyed by Cabernet Sauvignon or Merlot is its resolute Spanish-ness. Though Spain is one of the hottest countries on the itineraries of wine and food adventurers, we should remember that Spain largely sat on the bench during the early years of the global wine boom, hidden behind the isolationist policies of a right wing dictator. But post-EU Spain and her most planted black grape are now significant players in the international wine market.

In the World

Primary Growing Areas

Tempranillo is Spain's most important black grape and enjoys considerable geographical reach within that country. But Spain is a topographically and linguistically diverse country and so Tempranillo goes by many different names and expresses itself in many different ways from within Spain.

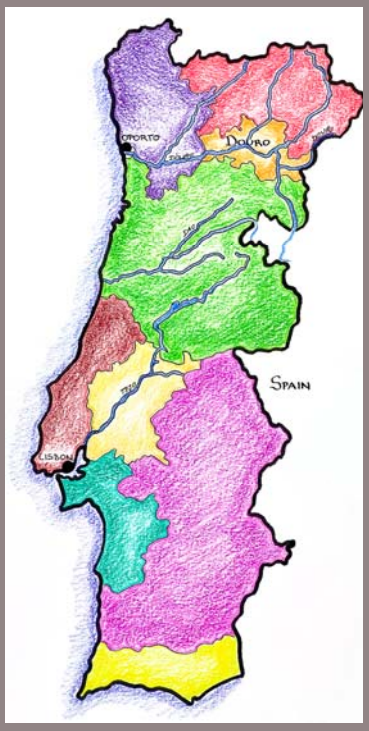
Though widely planted in northern and central Spain, Tempranillo is perhaps most often associated with Rioja, the first Spanish table wine region to achieve recognition both within and without Spain for the quality of its wines. Here, Tempranillo is almost always the main component in blended wines and is most often accompanied by Grenache and a few other local varieties.

Increasingly, however, other pretenders to the throne are making their names with the grape—Ribera del Duero, for example, whose high altitudes and chalky soils the grape enjoys, and nearby Toro whose expressions of Tempranillo are particularly robust.

Not surprisingly, given their proximity, Tempranillo is also an increasingly important variety in Portugal, especially in the north. When Spain's Ribera del Duero crosses the border with Portugal on its way to the Atlantic, it becomes the Douro. Even though the name changes, the river loses none of its attraction as far as fine wine production is concerned. The Douro, as a wine region, supplies the

Mapping Tempranillo

Map 11: Wine Regions of Spain



Map 13: Wine Regions of Portugal

See Also

Map 14: Douro River Valley

world with both fortified wines—Port—and, at least since the late 1950s, with increasingly sophisticated and delicious table wines. Several of these fine wines make significant use of what in northern Portugal is known as Roriz or Tinta Roriz—none other than Tempranillo.

Secondary Growing Areas

Tempranillo is widely planted elsewhere in Spain. Important regions with significant land devoted to the variety include the central Spanish growing areas of La Mancha and Valdepeñas, as well as Rioja's neighbor to the north, Navarra, where the grape is often blended with French varieties like Merlot and Cabernet Sauvignon.

In Portugal, Roriz is not at all confined to the Douro, though, as in Spain, its name changes as it moves about. Tempranillo is also important in the neighboring Dão region as well as in the high volume producing southern Portuguese regions of Ribatejo and Alentejo.

In the new world, Tempranillo is still something of a work in progress. Argentina has quite a bit of land devoted to the variety, but Tempranillo has not made much penetration into the fine wine portfolios of many top producers. California, Washington State, Oregon, and Australia are all experimenting with the variety but, again, high quality expressions of the grape are currently exceptions.

In the Vineyard

Tempranillo's success in Spain is not solely attributable to its ability to produce high quality wine. It is also appealing to farmers for the relative ease with which it is grown. Though it is fairly vigorous, it is also an upright grower. Poor soil helps restrain vigor and, when combined with its upright growth, the vine has, historically, been amenable to bush vine training (or *en vaso*, in Spain, the equivalent to France's *gobelet*).

Even more appealing, perhaps, is that Tempranillo is a relatively early ripener by Spanish standards—up to two weeks before Grenache, with which it is often blended. This trait gives the grape its name: *temprano* means 'early' in Spanish. Nor is Tempranillo early budding (but it is not remarkably late either) and its short cycle from bud to harvest has made it especially popular in Spain's cooler regions, such as Ribera del Duero.

Tempranillo adds yet another appeal to cool climate growers: as fine wine grapes go, it is relatively low in acidity, so that even when sugar levels are low, Tempranillo can still produce a thoroughly drinkable wine.

Though it is an adaptable variety as far as soils are concerned, Tempranillo has expressed itself most impressively in soils rich in calcium, such as the highly active chalks of Ribera del Duero, and the chalky clays of Rioja. Elsewhere, it has shown impressive results on schist soils.

Generally a hardy variety, Rioja is susceptible to downy and powdery mildews, though its thick skins and canopy management techniques in cooler, moister growing regions have done much to alleviate the problem.

In the Winery

Just as Tempranillo is easy to grow, it is also easy to work with in the winery, whether as a single variety or as a component in a blend where it provides structure, color, and aroma to comparatively fragile varieties like Grenache.

Tempranillo is also especially resistant to the effects of oxidation and, whether as the primary component of a blend or as a single variety, it possesses significant aging potential. It is for this reason that many of Spain's finest Tempranillo-based wines have historically been matured in barrel for extended periods, often after undergoing a long maceration. For many tasters, the flavors provided by wood—often looser-grained, sweeter tasting American oak—are indistinguishable from the flavors associated with the grape itself.

Fashion—in the form of a belief that modern drinkers prefer more primary fruit flavor and less of the earthy aromas (or bouquet) of a developed wine, has encouraged winemakers to reduce barrel time for Tempranillo all over Spain. But there are still some traditionally made Gran Reserva Riojas available which can give tasters a glimpse of this older winemaking style.

In the Glass

Tempranillo can, on occasion, be a difficult grape to identify because of its diverse expressions even within Spain. A mix of red and black fruits, it typically displays strawberry, black cherry, plum, mulberry and blackberry alongside black tea aromas.

In Rioja, long barrel-aged Tempranillo leans toward strawberry fruit augmented by vanilla, brown spice, tobacco and leather qualities which seem to suggest some of the developed aromas of Pinot Noir—so much so that Gran Reserva Rioja has, on occasion, been described as 'poor man's Pinot.'

In terms of color, Tempranillo ranges from a deep blue-black to, in wines which have spent abundant time in barrel, a pale brick or garnet color.

In the Mouth

Just as Tempranillo is diverse on the nose, so it is diverse on the palate. It is possible to find Tempranillo as a firmly tannic wine with moderate to high alcohol and low to medium acidity or as light, simple, fruity wine.

Most, however—and this is especially true of the finest traditional wines of Rioja—are characterized above all by elegance: moderate tannins, moderate acidity, and moderate alcohol on which the flesh of strawberry and vanilla hangs quite fetchingly.

On Sangiovese

Like several other major grape varieties, Sangiovese seems to live a double life. Source of some of the world's finest and longest lived wine, it is also called on to produce large quantities of very modest table wine. Once believed to be ancient, an aristocratic symbol of central Italy's Tuscany region, it is now known to be the relatively young child of humble parents. Long seen as a noble grape capable of making superb wine, it has also long been regarded as a problem child whose various weaknesses and deficiencies on the stage required a significant supporting cast in the vineyard and in the winery.

In the World

Primary Growing Areas

Recent DNA research which proves that Sangiovese is the noble child of humble parents—one from the north of Italy, and one from the south—will likely do little to undermine Sangiovese's position as the primary grape of central Italy.

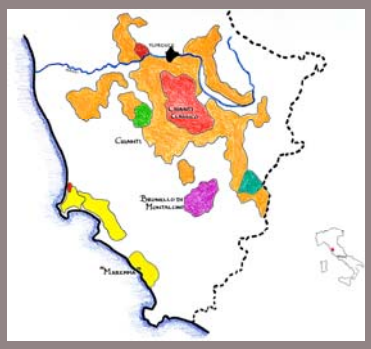
Within central Italy, it is Tuscany where the grape has achieved its greatest success. In several regions in the foothills of the Apennines mountain range, which travels down the Italian peninsula like the raised scales of a dragon's spine as well as in several coastal regions (the Tuscan Maremma), the grape is capable of making concentrated, long-lived varietal and blended wine.

Most identified with the several outposts which represent Chianti, the grape performs best in two of Chianti's most historic zones—Chianti Classico and Chianti Ruffina. In these areas, Sangiovese can produce elegant, long-lived wines, usually as the dominant component in a blend with other varieties. That Chianti may be a pure varietal wine from Sangiovese is a recent innovation. Italian tradition and, indeed, law, has traditionally compelled a certain judicious blending in these occasionally cool, altitude influenced regions.

Further south, Sangiovese takes on more substance in the small denomination of Vino Nobile di Montepulciano. Further south still, and closer to the moderating influence of the Mediterranean, is found what for many tasters has

Mapping Sangiovese

Map 8: Wine Regions of Italy



Map 10: Tuscany

See Also

Map 18: West Coast North American Regions

Map 20: Wine Regions of South America

Map 23: Wine Regions of Australia

long been Sangiovese's purest and most intense expression—Brunello di Montalcino.

Secondary Growing Areas

Within Tuscany, Sangiovese is also important in the southern coastal region of Morellino di Scansano and in the northern region to the west of Florence known as Carmignano where the grape is traditionally blended with Cabernet Sauvignon.

Sangiovese's range extends east of Tuscany into the small region of Umbria where wines similar to those of Tuscany are often produced. Next to Umbria is the Adriatic coastal region of Marches where Sangiovese begins to share the spotlight with another important Italian grape—Montepulciano—in blended wines.

In the new world, Sangiovese has met with only mixed success. A failed early experiment by one of Tuscany's highest profile producers may have retarded Sangiovese's growth in California to some extent, but some recent success with the variety—especially in the north coast regions—have been encouraging.

Australia has also produced some interesting Sangiovese while Argentina, with substantial land devoted to the grape, tends to see it as something other than a potential candidate for fine wine production. That, however, is likely to change.

In the Vineyard

Much of Sangiovese's current fashionability and increasing stature in Italy has to do with modifications made in the central Italian vineyard since the 1980s.

Though it is an adaptable variety, quality-conscious producers are increasingly attempting to provide Sangiovese the resources it needs to achieve full ripeness. Sangiovese is bothy a late and slow ripener and requires a properly exposed site with sufficient warmth and sunshine in order to provide appealing flavors and avoid sour acidity and coarse tannins. Forcing the variety to produce too much fruit—a common occurrence in Italy—also tends to accentuate the wine's structure and can produce hard tasting, charmless wine.

Though generally hardy, Sangiovese is relatively thin skinned and, like most such varieties, has little resistance to gray rot in cool, wet years. Well-drained soils help to protect against rot and Sangiovese has found particular success in the crumbly, loose-textured, lime-rich clay of central Tuscany. The grape has also performed well in shale and, when the climate is warm enough, in sandier soils, too.

Of all of the vineyard advances, however, perhaps none has been as significant to the fortunes of Sangiovese as clonal research and selection. For a long time, it has been a convenience to believe in two Sangioveses—the larger berried, loose-bunched and better Sangiovese Grosso, and the smaller berried, tight bunched, inferior Sangiovese Piccolo. This, say vine scientists, may have been nothing more than a farm fiction. In fact, there are many different clones of Sangiovese and, since the early 1980s, significant energy has gone into identifying the finest.

In the Winery

The modifications Sangiovese has been experiencing in the vineyard have been paralleled by changes in the winery. It is, for that matter, likely that what we understand as 'traditional' approaches to making wine from the grape have more to do with the quality of fruit typically arriving at the winery before vineyard modification than with anything inherent in Sangiovese itself.

True, the grape tends to be high in tannin and acidity and relatively low in aroma and pigment. But this all-bone-and-no-flesh version of Sangiovese is increasingly a thing of the past. Still, Sangiovese has historically required blending to make up for what is missing and to reduce the weightiness of what is there in abundance—white grapes to moderate the tannins, heavily pigmented grapes to supply color, fruity varieties for aroma. What tradition gave us was a sort of Frankenwine built on the skeleton of Sangiovese.

Maceration times for these wines were often long in order to extract as much stuffing as possible from the fruit. These wines would then be matured, sometimes for long periods, in large oak containers known as *botti* in the plural or *botte* in the singular.

This, by the way, is not meant to be a negative portrait of these wines. Many, because of their acid-tannin balance, were capable of exceptionally long life in the bottle. There are still many traditionally made Sangiovese-based wines which are truly sublime, almost ethereal, in fact, in maturity.

More modern approaches using riper fruit from lower yielding vines are much more likely to be naked, unblended Sangiovese. They are also much more likely to follow the basic themes of modern winemaking—shorter maceration times, and shorter times in smaller (often new) barrels. If this riper, fruitier Sangiovese is blended, it is more likely to find its companion grapes to be French—Cabernet Sauvignon, Merlot, Cabernet Franc, Syrah. A flurry of such wines appears on the market every year and, though the term is now dated, they are often known as 'Super-Tuscan' wines.

In the Glass

The diverse approaches to making wines from Sangiovese, as well as the various blending partners with which it often swings can make identifying the variety a challenge. Nevertheless, there are some commonalities which distinguish most expressions of the variety. Never particularly deep of color, traditional expressions of Sangiovese tend toward a palish ruby or garnet color. Aromatics are typically moderate in intensity with a certain cherry-like quality. These primary fruit aromas are supported by a range of pleasingly vegetal aromas—dried leaves, tea, tobacco, straw—and occasional floral elements.

In maturity, Sangiovese can emphasize the tea and tobacco aromas and include notes of saddle leather and, occasionally, mushroom.

In the Mouth

On the palate, Sangiovese is typically a well-structured wine with medium to high levels of tannin. Both of these elements contribute to the considerable aging potential of the finest wines. Though alcohol levels are moderate in traditional examples, modern versions may have relatively high alcohol levels. Those high alcohol levels—topping 14%--are usually accompanied by milder tannins and lower acidity.

On Nebbiolo

Nebbiolo can be a challenge to novice tasters, especially those raised on soft and accessible off-dry wines or on easy drinking 'critter' wines from the New World. Beside such wines, Nebbiolo can seem particularly inaccessible. For that matter, many tasters find the rewards provided by patient cellaring of the wine too distant, too cerebral. But for other drinkers—and not, it should be said, only those with great experience—Nebbiolo-based wines represent some of the world's greatest.

For some, indeed, Nebbiolo stands alongside Cabernet Sauvignon and Pinot Noir as a member of the trinity of the world's finest black grapes.

In the World

Primary Growing Areas

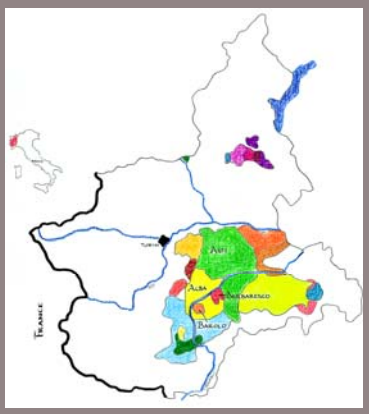
Of all of the major black grapes, Nebbiolo is unique for its lack of geographic dispersion. With very few exceptions, Nebbiolo is a resolutely north western Italian grape. Even within this small area, the grape has only found significant success in the Alpine foothills of the Barolo and Barbaresco appellations of Piemonte. And even within these small areas, the grape succeeds best on hillside sites with ideal exposure. There is an oft-repeated romantic story which claims that Nebbiolo is only planted on the hills where the snow melts first in the spring, because these places will provide the longest growing season—precisely what Nebbiolo requires.

Secondary Growing Areas

This is not to say that Nebbiolo cannot be successful elsewhere, but it rarely rises to the heights it achieves in Barolo and Barbaresco. In Piemonte, Nebbiolo is important in the regions of Gattinarra, Ghemme, and Carema. What distinguishes these regions, however—all of which are further north and cooler than Barbaresco and Barolo—is that Nebbiolo rarely achieves the necessary ripeness to allow it to make a pure varietal wine. Instead, it is almost invariably a component—dominant, it's true—in blends with local varieties. The same is true of Nebbiolo's expressions in neighboring Lombardy where the grape is found in the Alpine region of Valtellina. Here, for all but

Mapping Nebbiolo

Map 8: Wine Regions of Italy



Map 9: Piedmont

the finest wines from the finest vintages, Nebbiolo (locally known as Chiavanasca) also finds itself as a component in a blend.

Not surprisingly, given Nebbiolo's reputation and potential for producing fine wine, there has been a great deal of experimentation with the grape in the new world. And though there have been good wines produced in Australia, California, Mexico, and South America, the general consensus among professional tasters seems to be that further experimentation is required.

In the Vineyard

The small space devoted to Nebbiolo is testament to its fussiness in the vineyard. Even though its bunches are fairly loose, it is susceptible to both powdery and downy mildews. Though it prefers to grow in temperate, Continental climates, it is early budding and late ripening, making it occasional victim to *coulure* and frost. Nebbiolo's late ripening is partly responsible for the grape's name: with a harvest date extending into October (even November) the bunches are often collected in the midst of the autumn fogs (or *nebbia*) which blanket the region.

Nebbiolo is also particular about the soils in which it grows, preferring the poor, calcium-rich marls of Piemonte.

In the Winery

Approaches to making wine from Nebbiolo have changed drastically since the late 1960s, and while it is a simplification, there are two dominant approaches, one which may be described as 'traditional' and one as 'modern'. These are, of course, not absolutes, and the finest winemakers evaluate their approaches with each new batch of fruit in each vintage. Most, for that matter, would reject either the 'traditionalist' or 'modernist' tag. Much of the difference between the two approaches stems from different attitudes about the place of Nebbiolo-based wines in the global marketplace.

The traditionalist understands Nebbiolo as a grape for the long haul capable of producing a wine today which will be enjoyed by generations down the road. Because of this, their wines tend to emphasize the preservative elements in red wine—tannin and acid. For the traditionalist the grape harvest is earlier, and maceration (both pre- and post-fermentation) longer. The wines are matured in large barrels (not always oak) better to preserve what little color this low-pigment variety is able to offer.

Modernist producers observe that while some traditionally made wine can be truly sublime, many never find the balance their supporters say they will find in maturity. In place of the traditional techniques, modernists substitute a series of techniques designed to make wines which are more accessible in youth, while at the same time preserving their ability to endure a decade or more of cellaring.

The techniques of the modernists include later harvesting so that tannins and pigments are ripe, shorter maceration times and less time in small oak barrels before bottling. The techniques are designed at once to soften Nebbiolo's preservative structure and to emphasize the already limited primary fruit the variety offers.

In the Glass

Many experienced tasters are able to recognize traditionally made Nebbiolo simply by observing its notoriously orange complexion. Modern approaches to the grape produce darker wines and have introduced some not at all unpleasant complications into the identification of the grape.

The challenge of Nebbiolo, however, often strikes tasters when they nose the wine—especially when it is young. Nebbiolo is anything but a fruity variety and those who love it, love it for reasons other than primary fruit aromas.

What primary fruit there is tends to resemble cherry—sour (or morello) in traditional wines, black in more modern versions. Quite often the fruit has a dried quality as though it were destined for Christmas cake or trail mix.

For most, it is Nebbiolo's floral and savory sides which are most appealing. Though muted in young wines, mature Nebbiolo can offer an intense bouquet of truffles, tar, roses and violets.

In the Mouth

Distinctive of color and aroma, Nebbiolo also offers a set of distinctive features on the palate. High in both tannin and acidity, Nebbiolo-based wines can seem challenging to drink. Modern approaches to vinification have successfully muted some of these characteristics, but it should be observed that a varietal Nebbiolo without at least medium to high tannin and acidity is not really typical.

Nebbiolo-based wines are typically full bodied and high in alcohol.

Going Forward, Looking Back

In my own classes, I have a tendency to trot out the image of the Russian doll to explain the process of wine education. A large doll is opened to reveal a smaller, identical doll, which is opened to reveal an even smaller identical doll.... As the dolls get smaller, the focus of the designer increases. The broad strokes used to paint the large doll become finer and more intimate as the dolls shrink. I didn't realize how serious my addiction to the image was until I was presented with a doll by one of my students and told to "just hold this up."

To me, the study of wine proceeds in much the same way as the Russian doll—from broad strokes to fine detail. This is, in fact, the way that the ISG has designed its courses. Wine Fundamentals Level 1 introduces grape varieties. Wine Fundamentals Level 2 takes those grape varieties (and a few more) and puts them in their most important regions. The Sommelier Diploma Program fills in all of the fine detail and adds many more regions on top of those covered in Wine Fundamentals 2. And it prepares students for a professional life in wine.

This text is designed to lay a foundation for the concepts which are to come. As you continue your wine education, you will no doubt find yourself returning here for simple explanations and clarifications of concepts you encounter in more detail later on. But the secret to learning about anything is to lay a solid foundation.

We hope that you understand that the foundation given in this class is not just the information we provide; it is also the sense of community and friendship that will develop in the classroom.

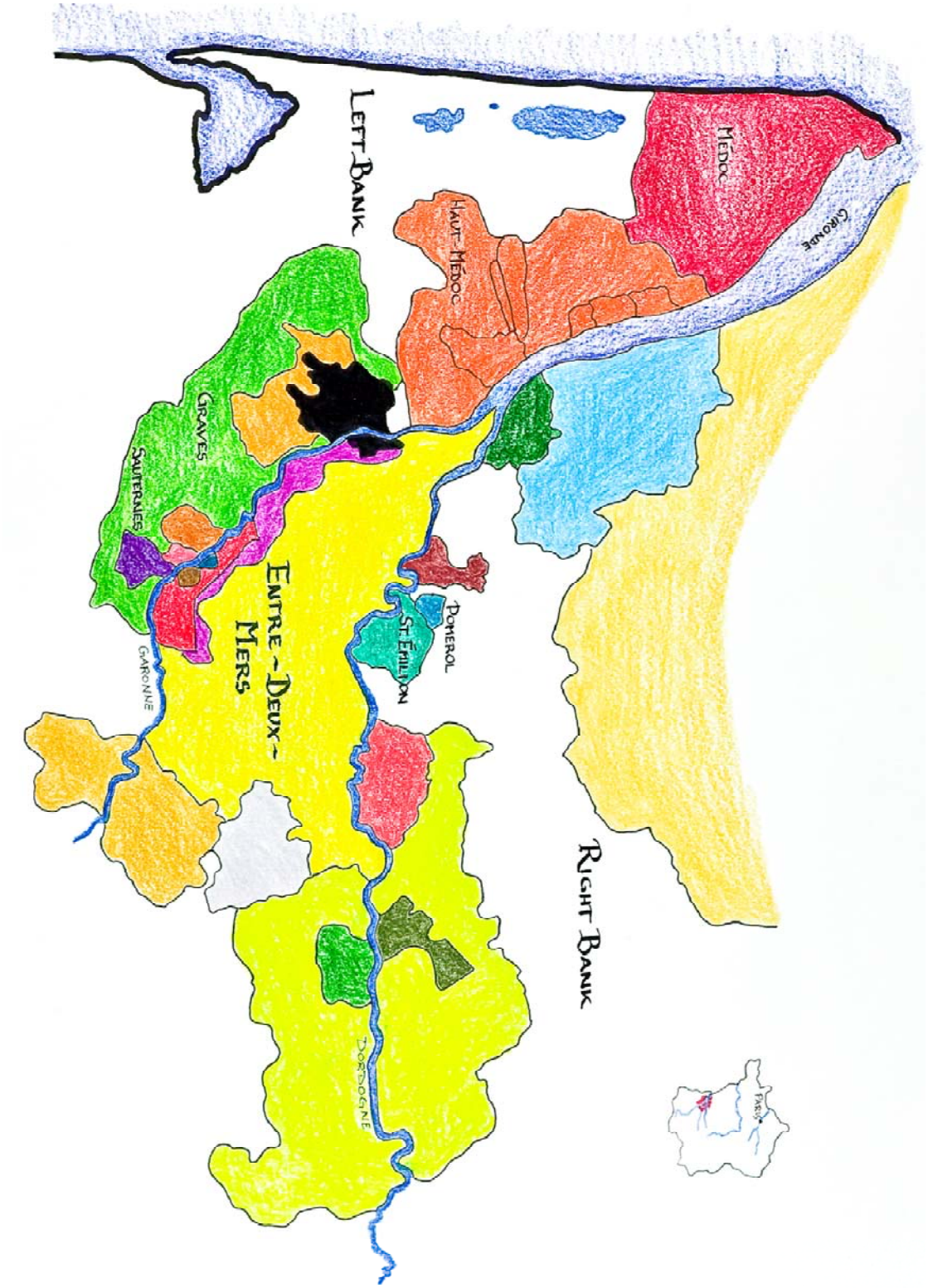
Traveling the full distance from Wine Fundamentals 1 to the Sommelier Diploma is challenging. You will find, I suspect, that the journey is easier and more fun if you travel in a group composed of people with similar passions and interests. The ISG, after all, is just that: a group of people with a passion for wine and education all working together toward a common goal.

This textbook would not have been possible without the assistance and contributions of a number of people. Joseph Miller guided the whole project. Jennifer Janssen provided the book's design. Roberta Belfry, Barbara Philip MW, Mark Davidson, Peter Bodnar Rod and Richard Harvey all read and commented on specific sections of the text. Where the text is good, it is this chorus you hear; where it is weak, it is just me shouting in the wilderness.

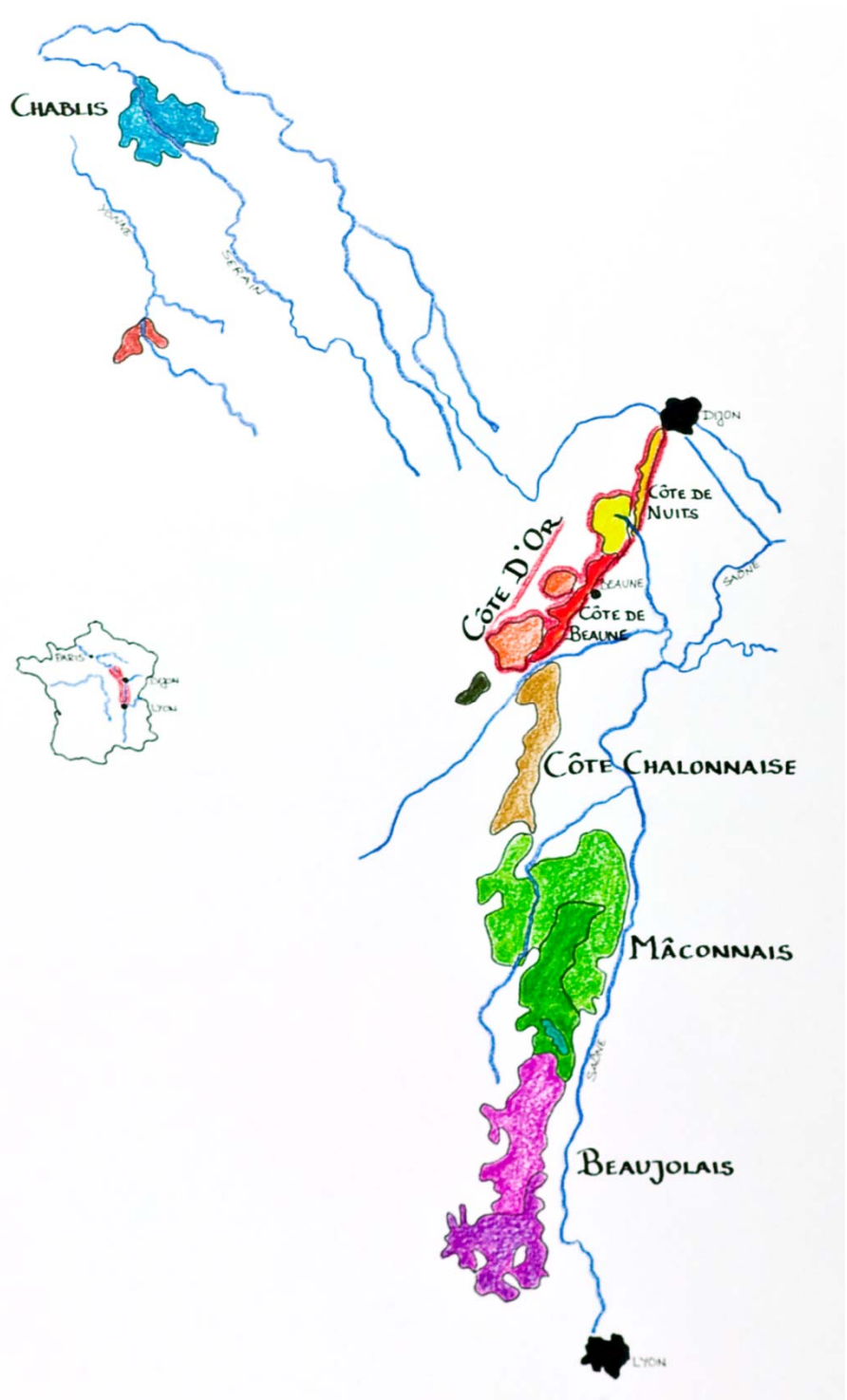
Wayne Gotts

Map 1—Wine Regions of France

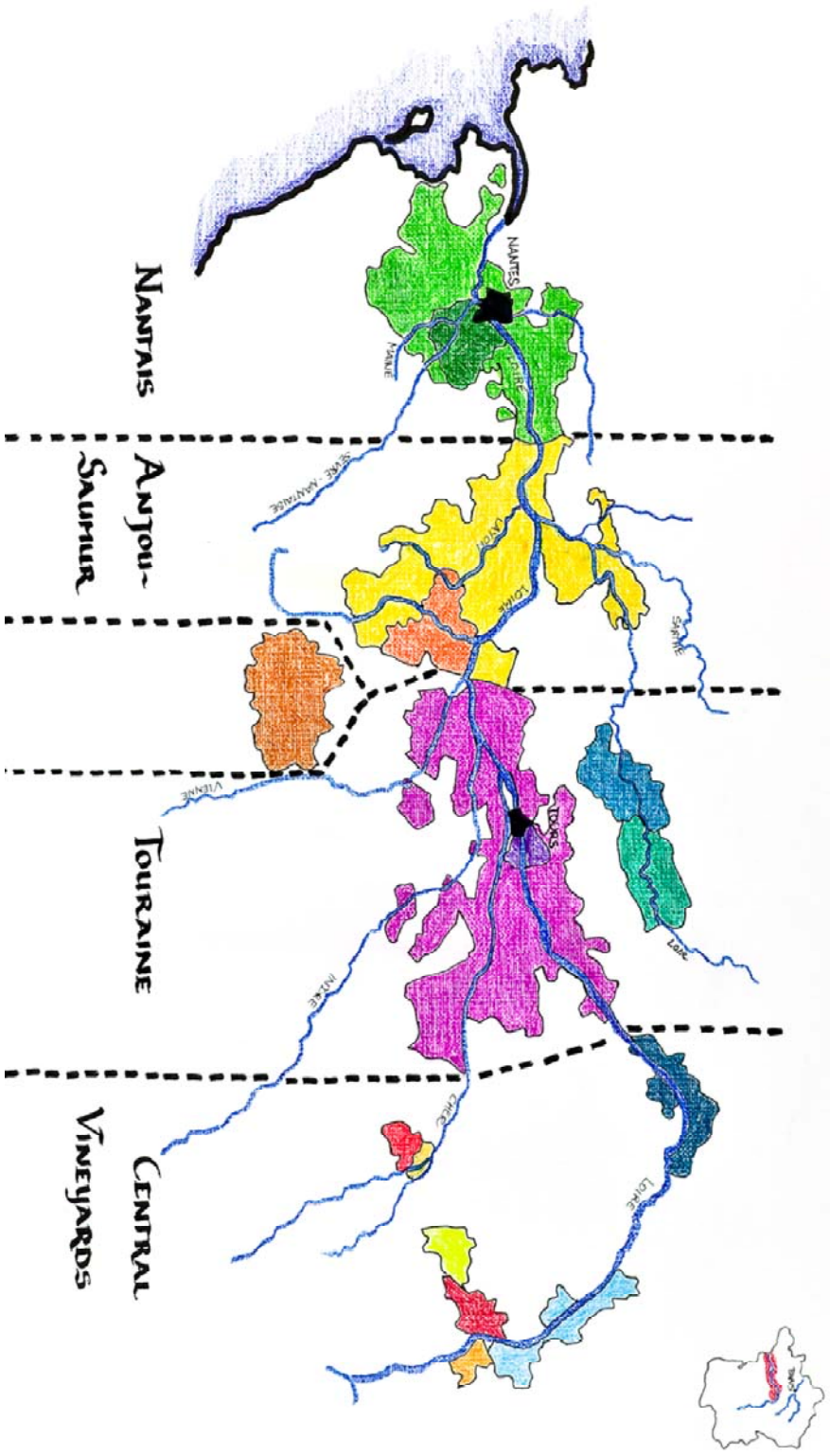
Map 2—Bordeaux



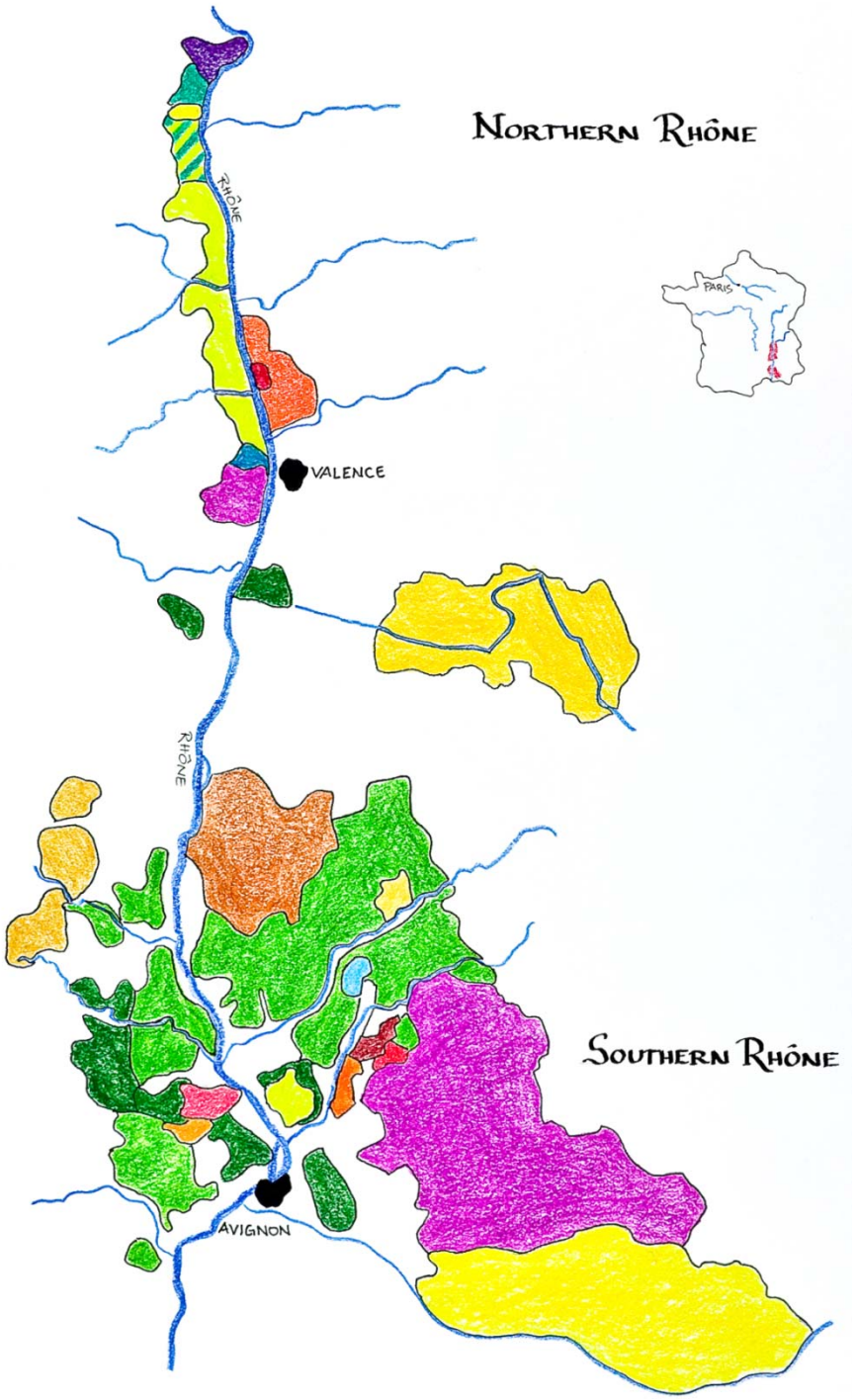
Map 3—Burgundy



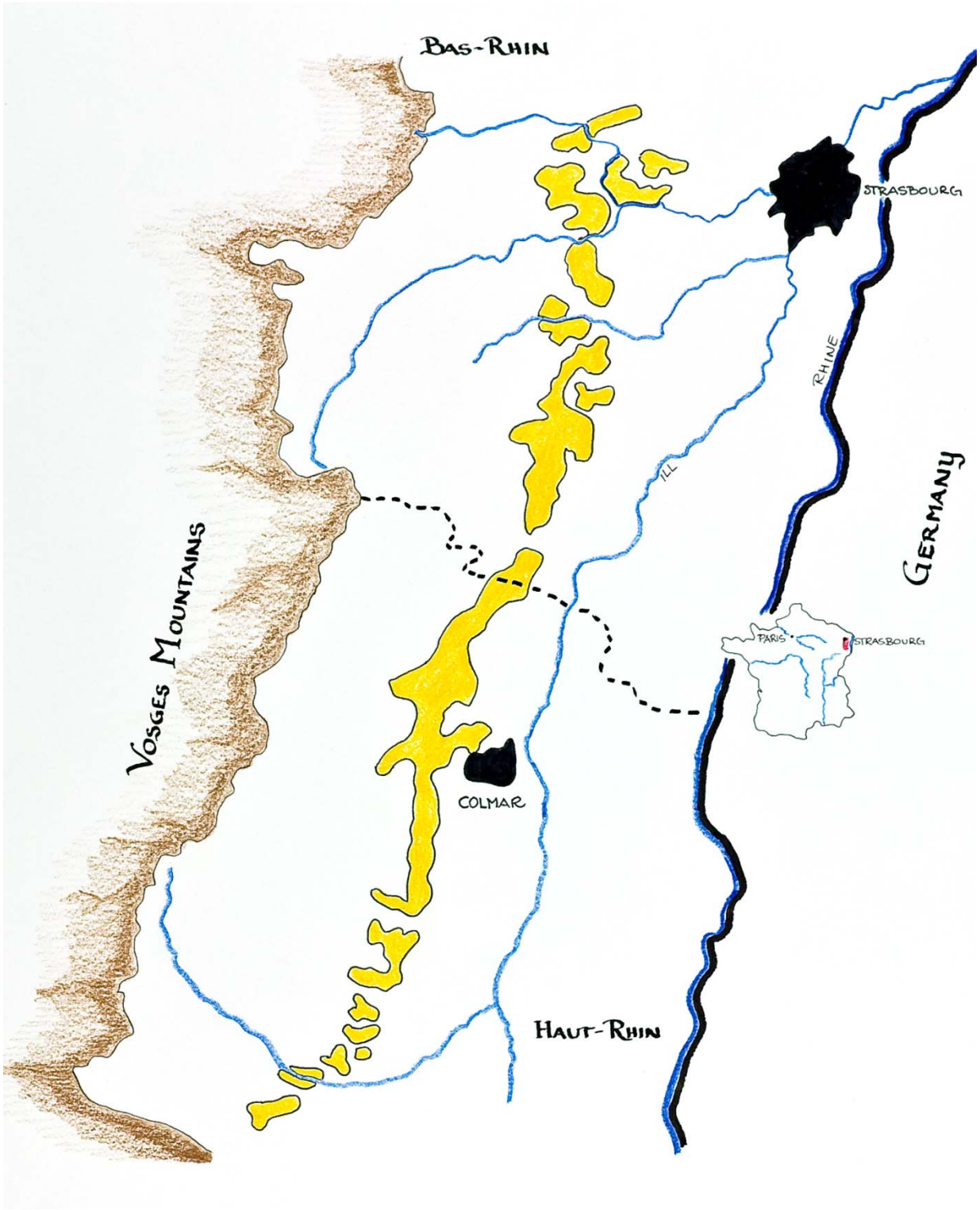
Map 4—Loire River Valley



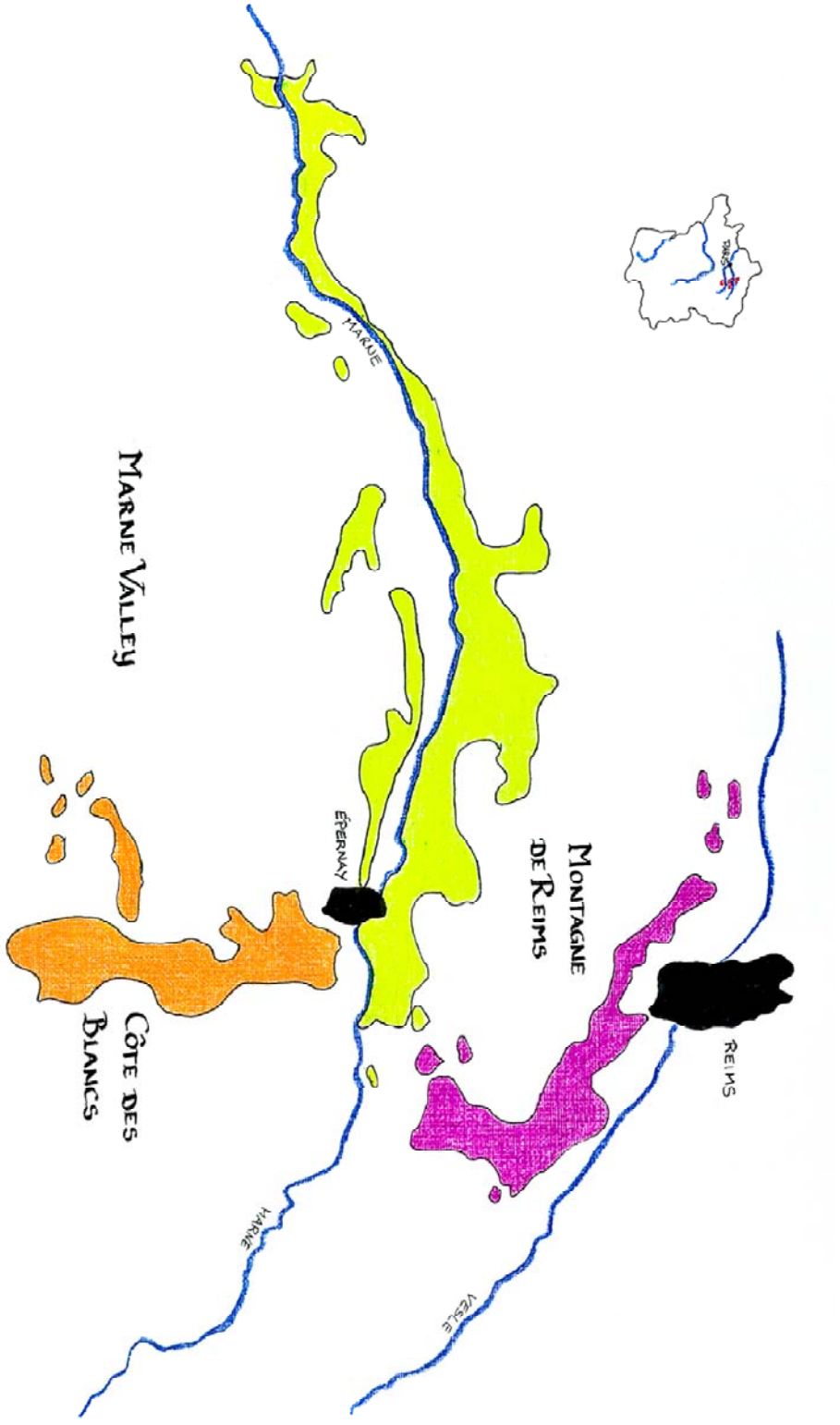
Map 5—Rhône River Valley



Map 6—Alsace

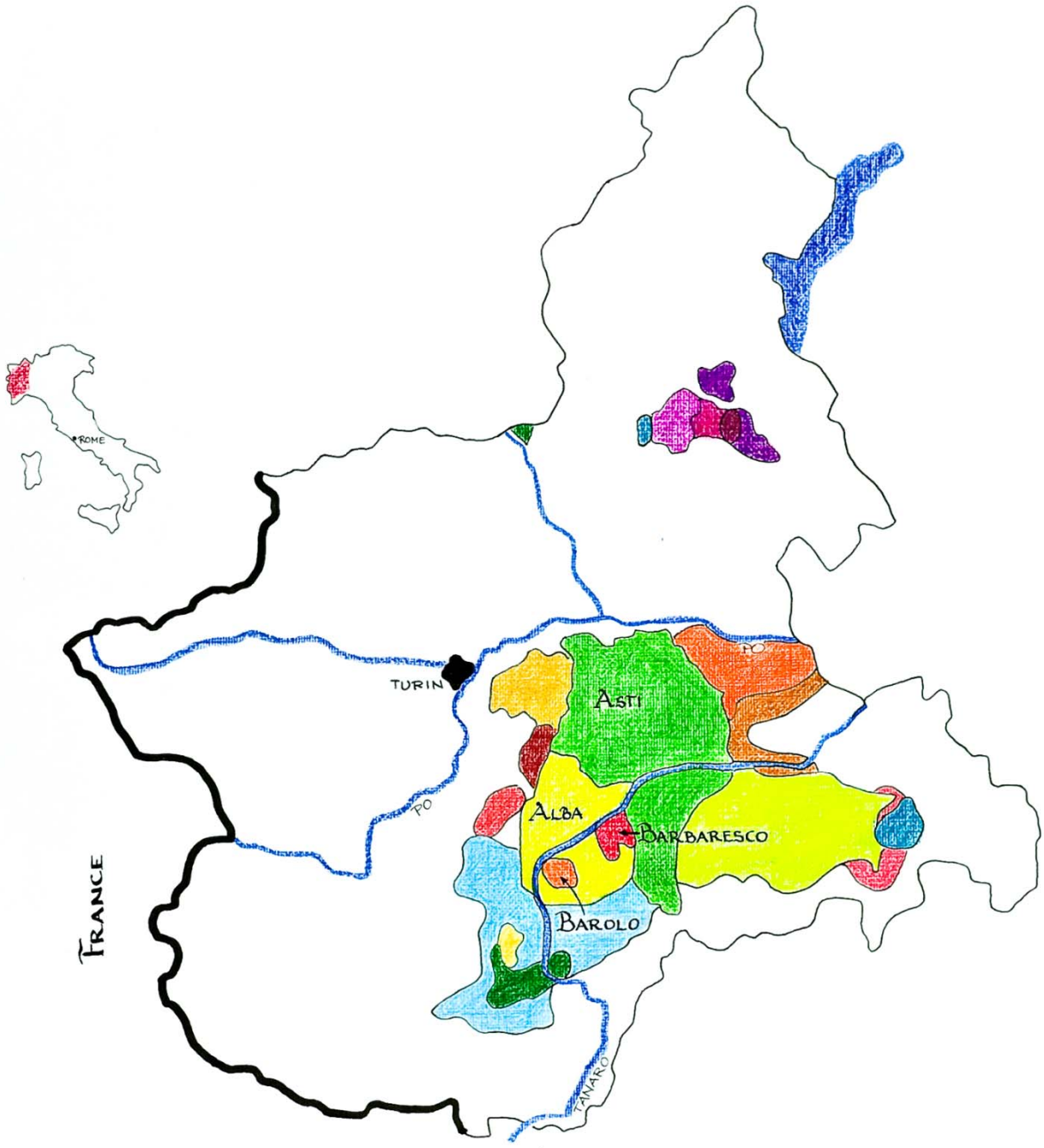


Map 7—Champagne

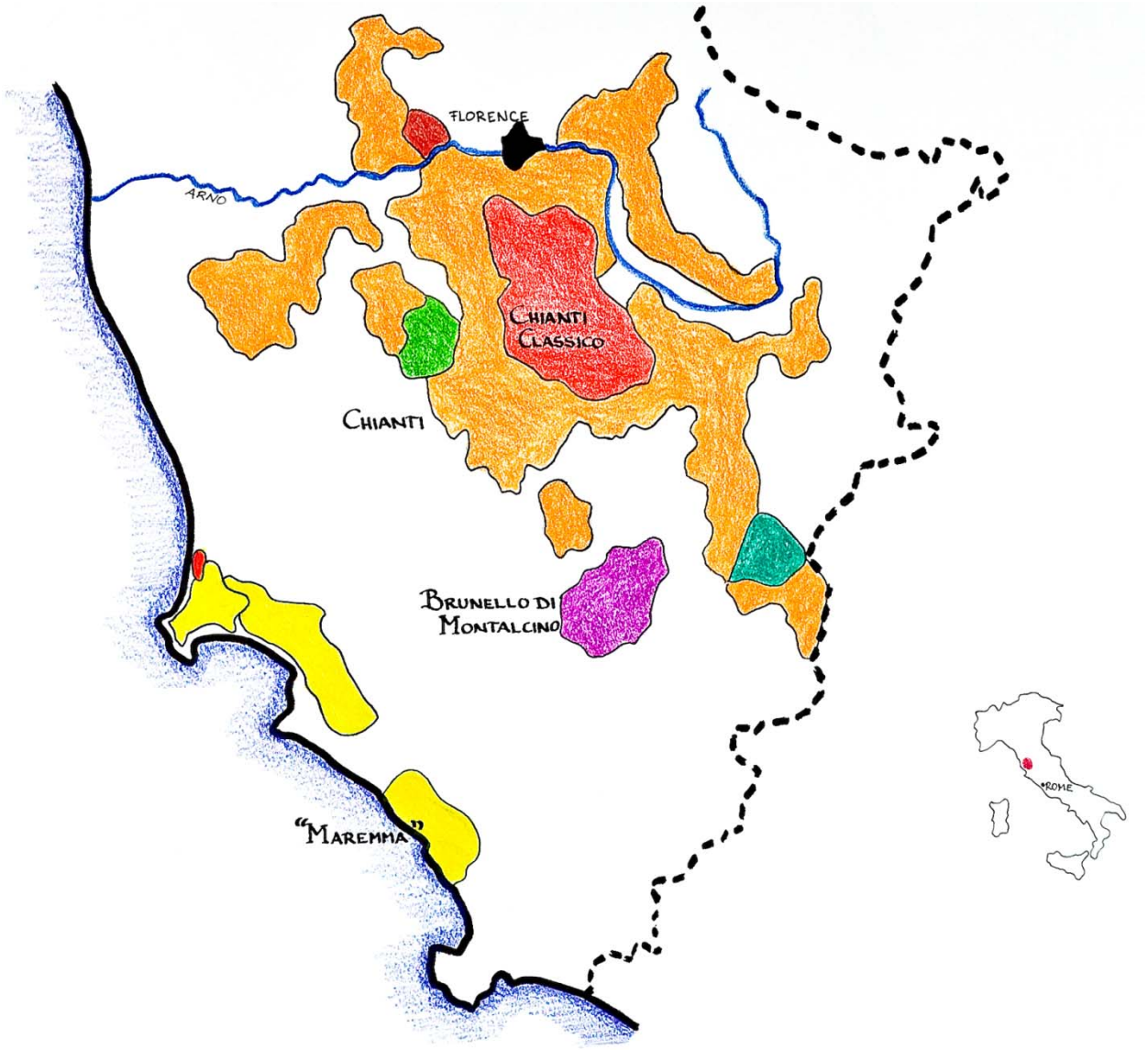


Map 8—Wine Regions of Italy

Map 9—Piedmont

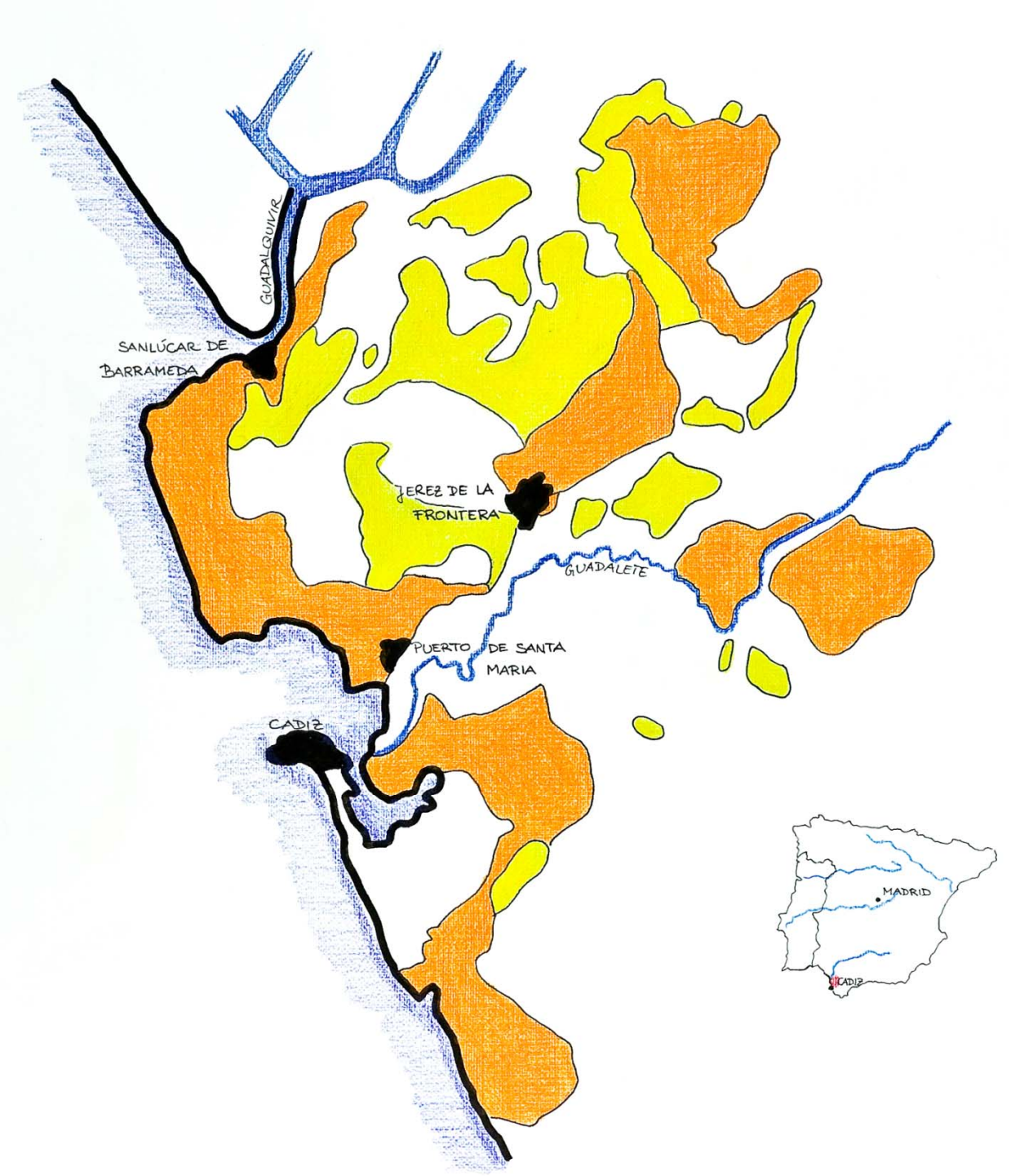


Map 10—Tuscany

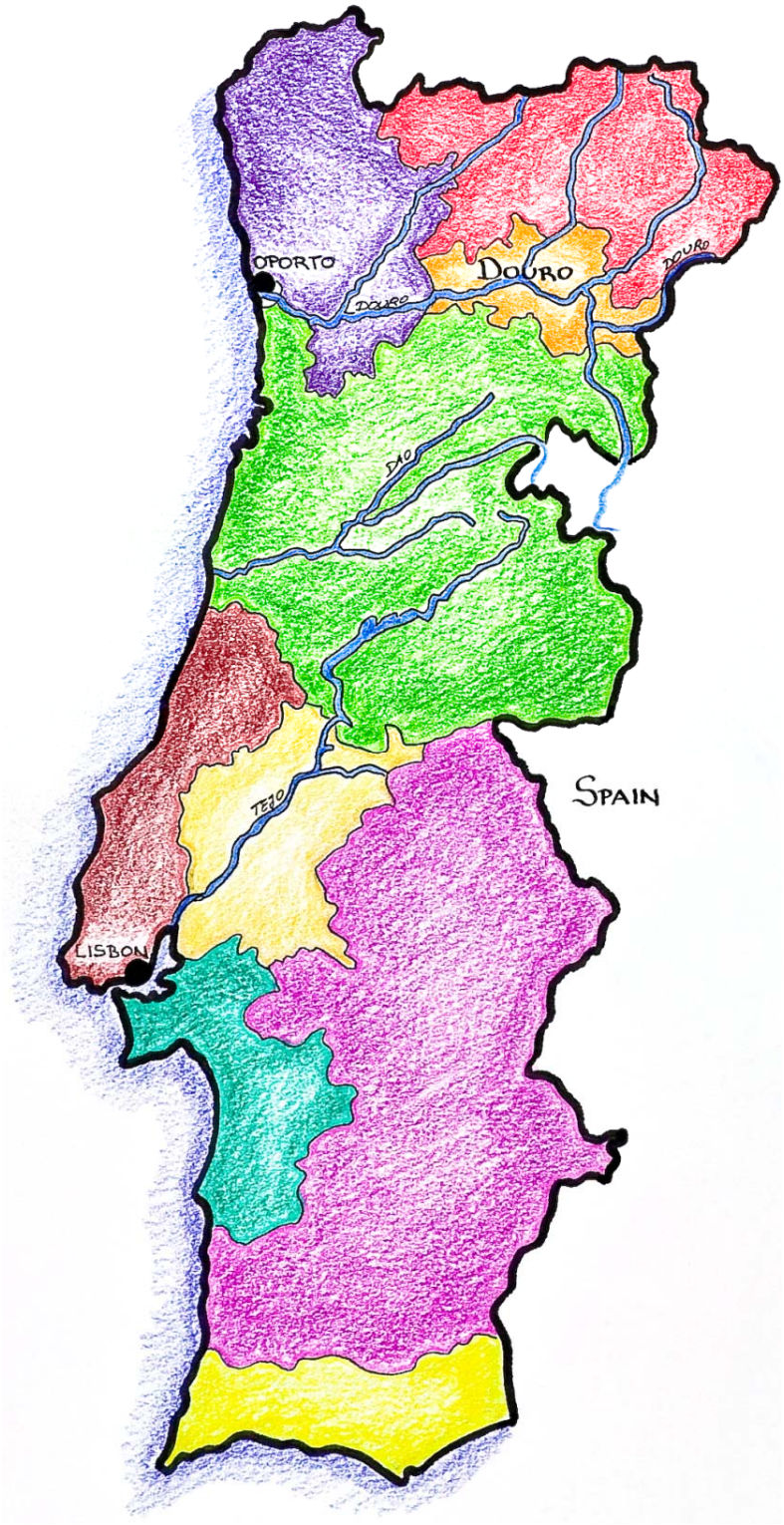


Map 11—Wine Regions of Spain

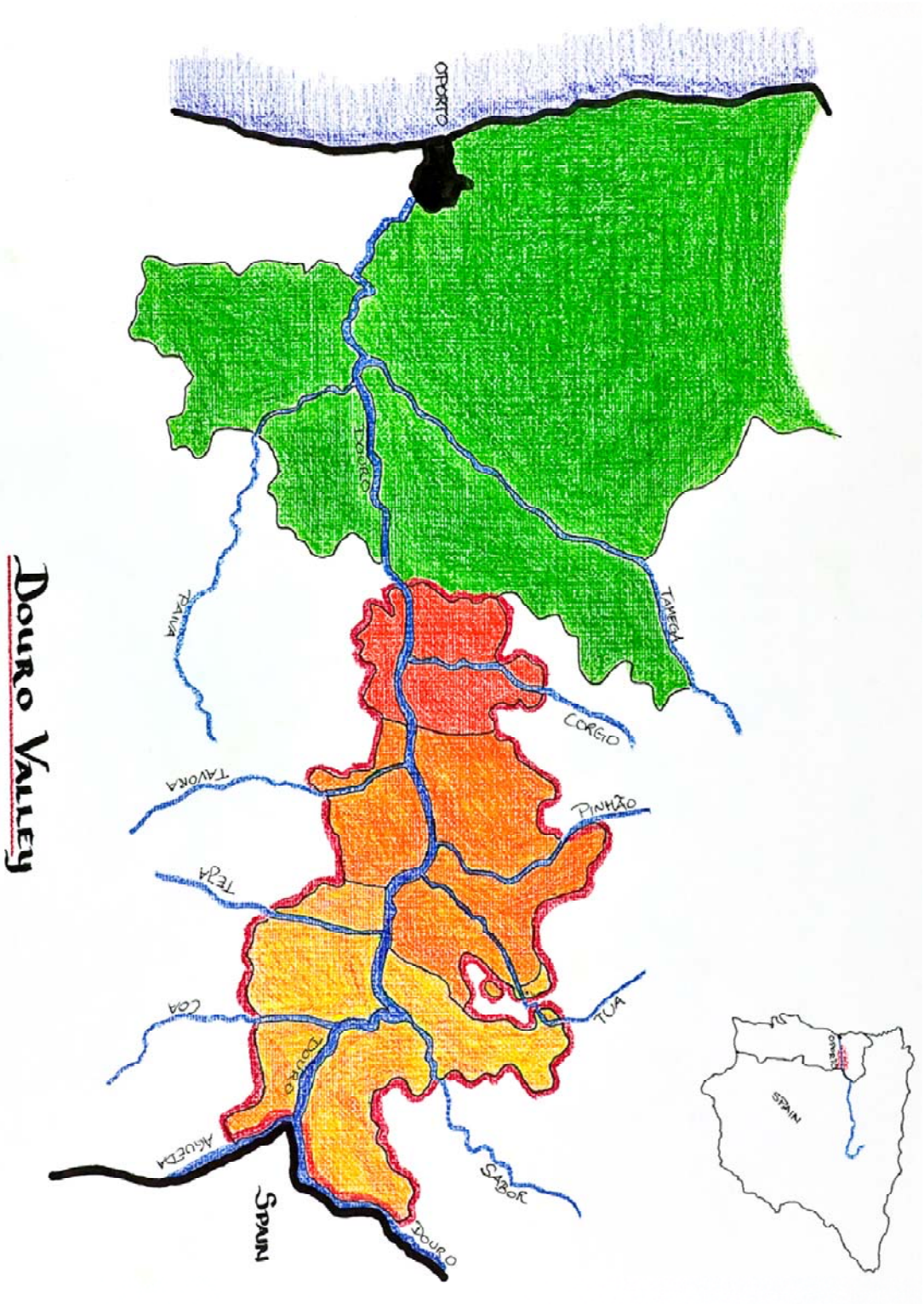
Map 12—Sherry



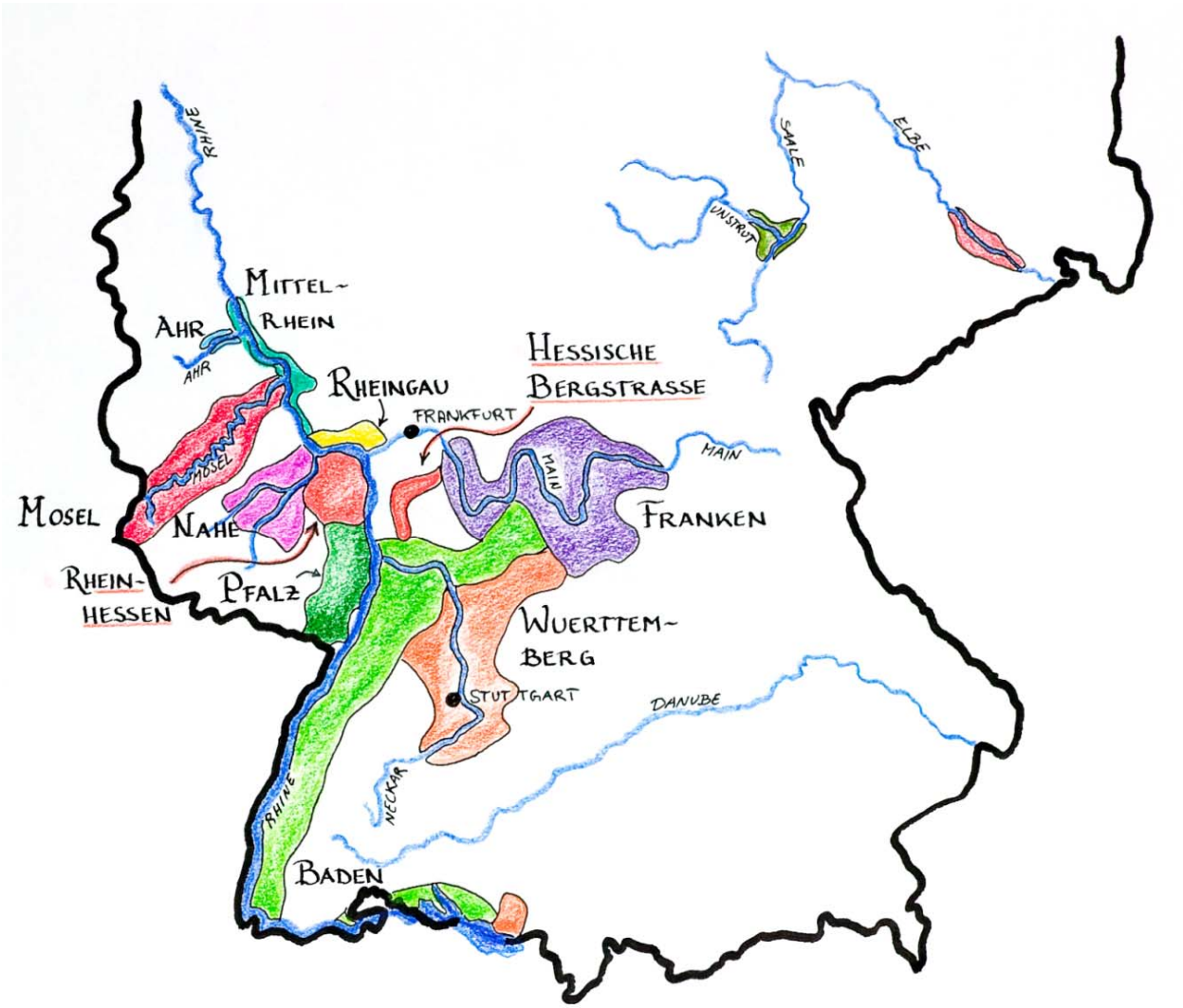
Map 13—Wine Regions of Portugal



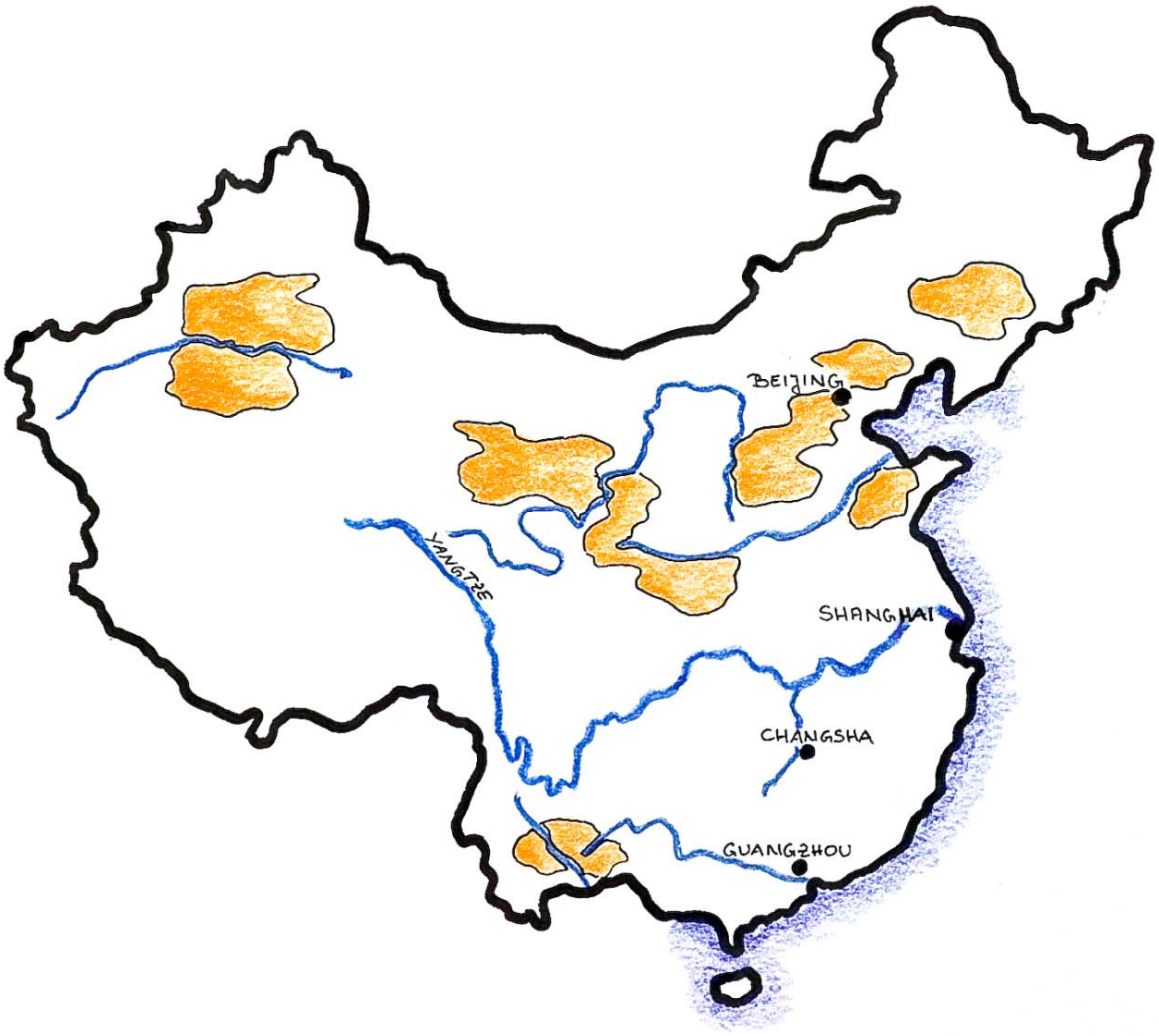
Map 14—Douro River Valley



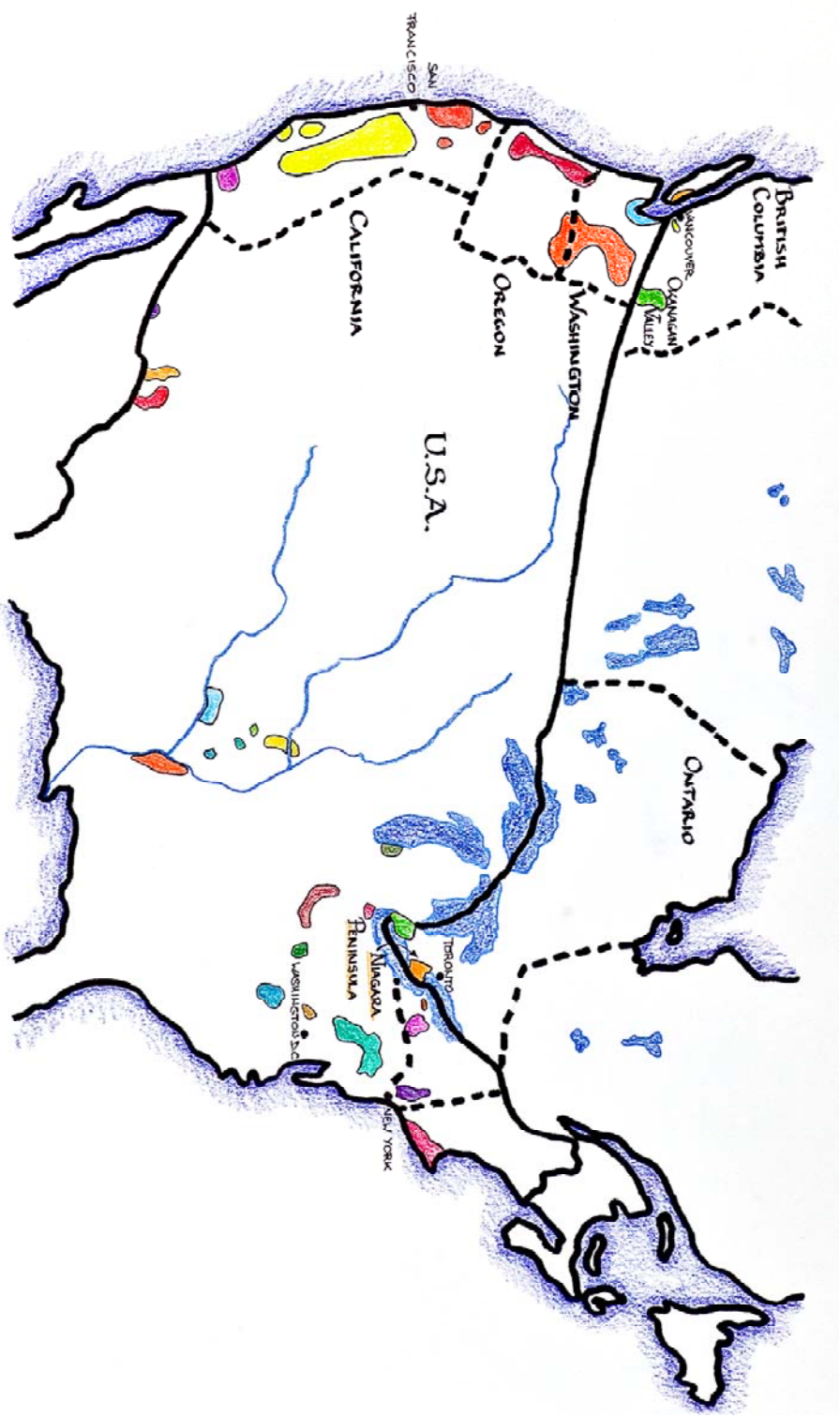
Map 15—Wine Regions of Germany



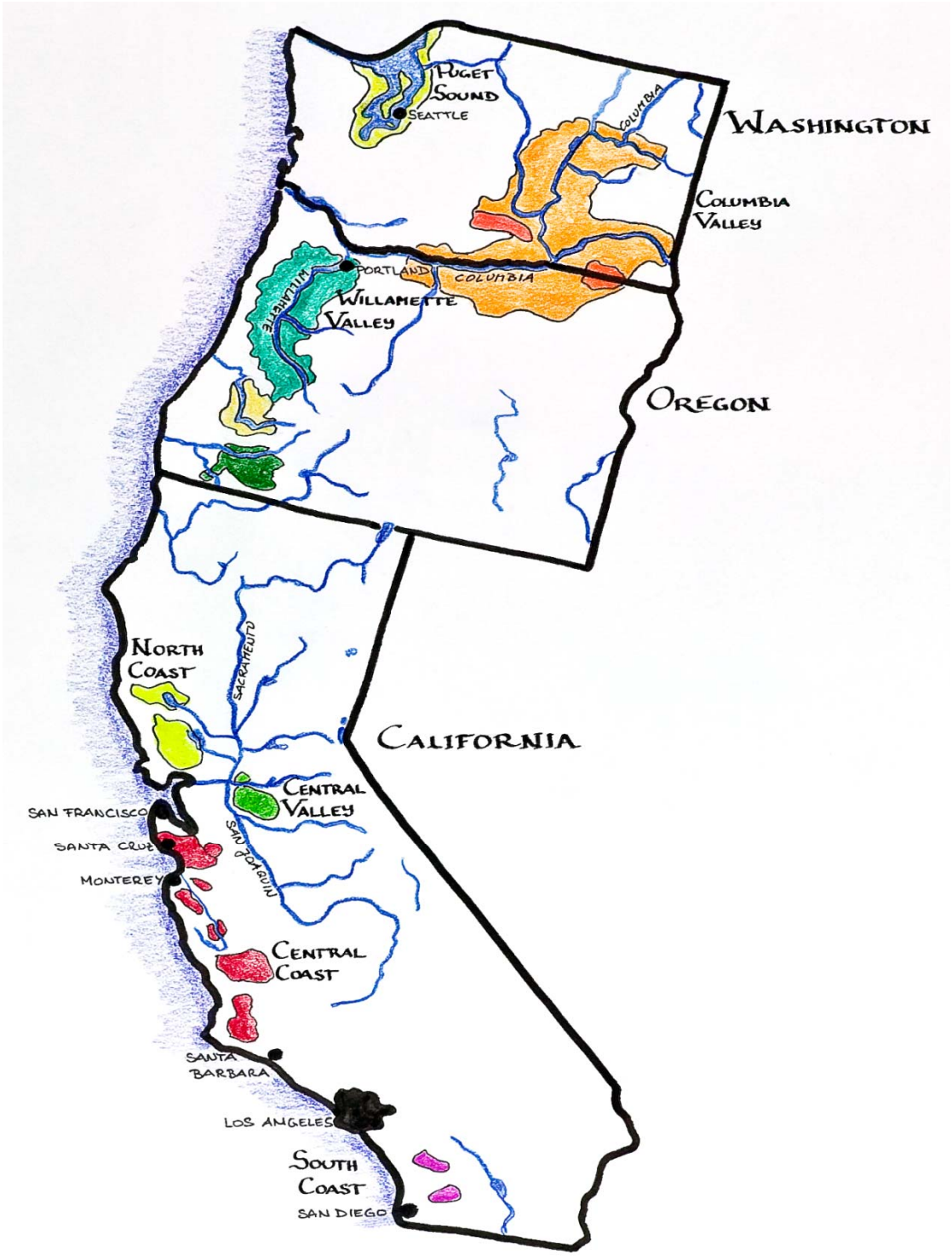
Map 16—Wine Regions of China



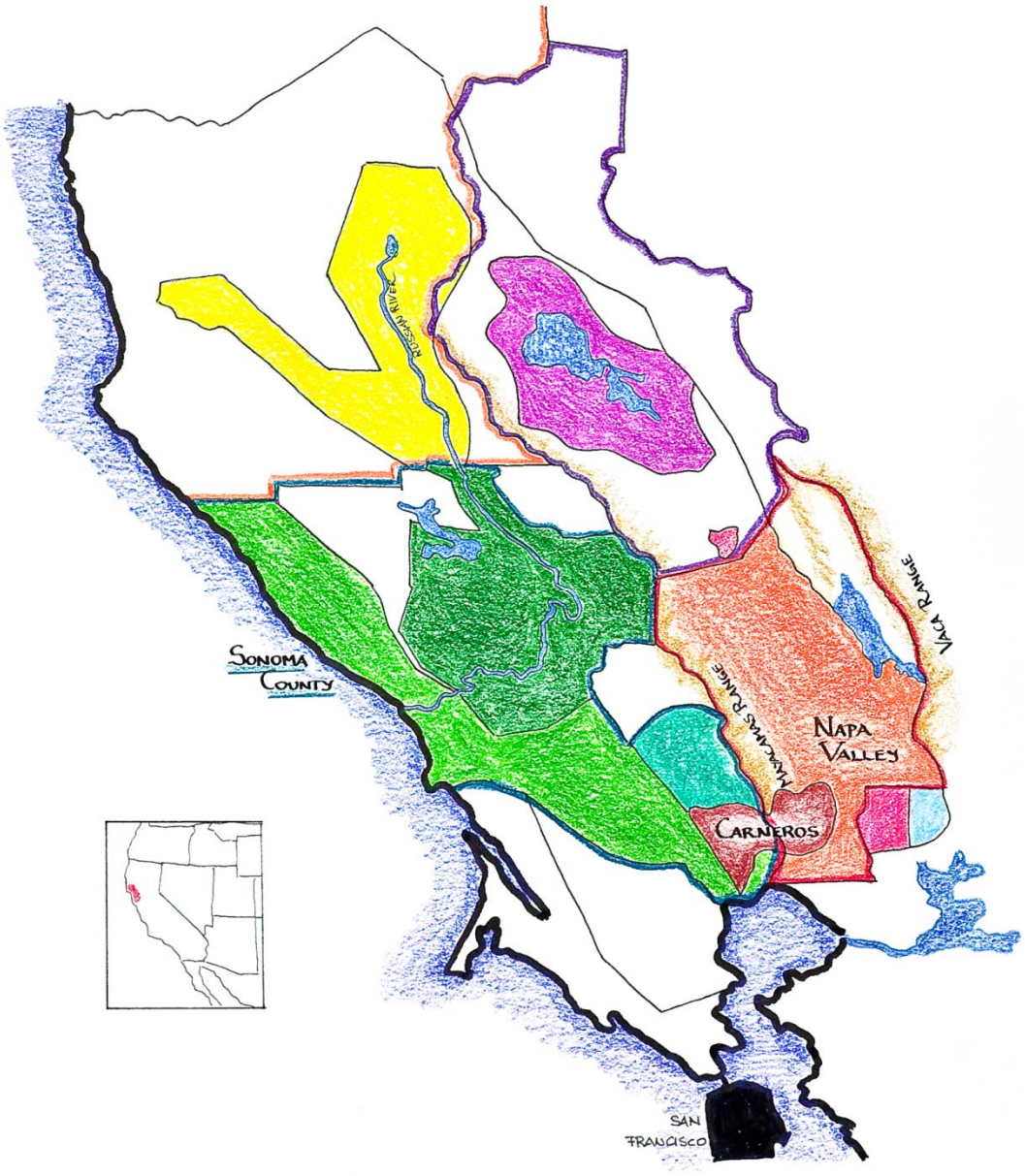
Map 17—Wine Regions of North America



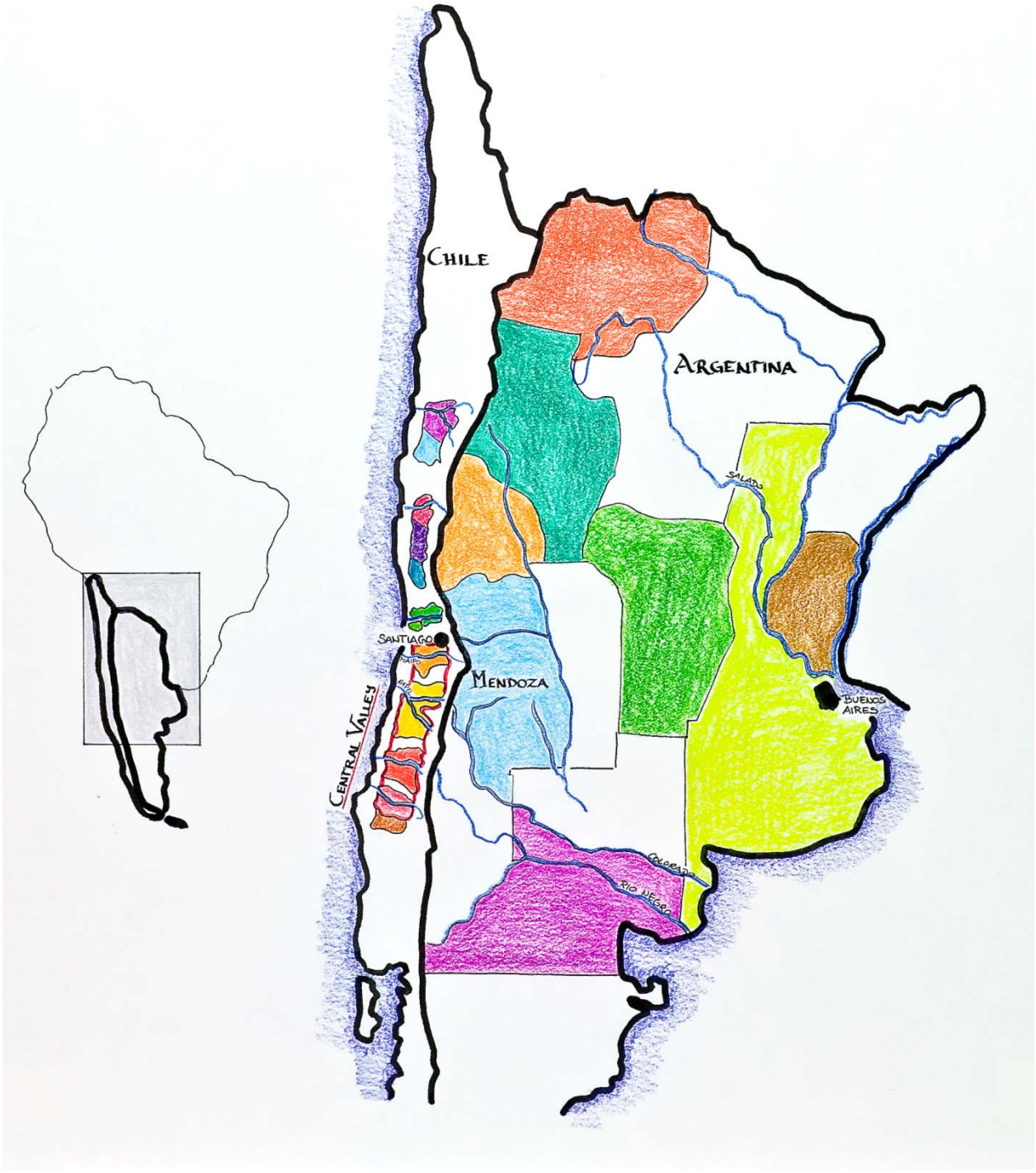
Map 18: West Coast North American Regions



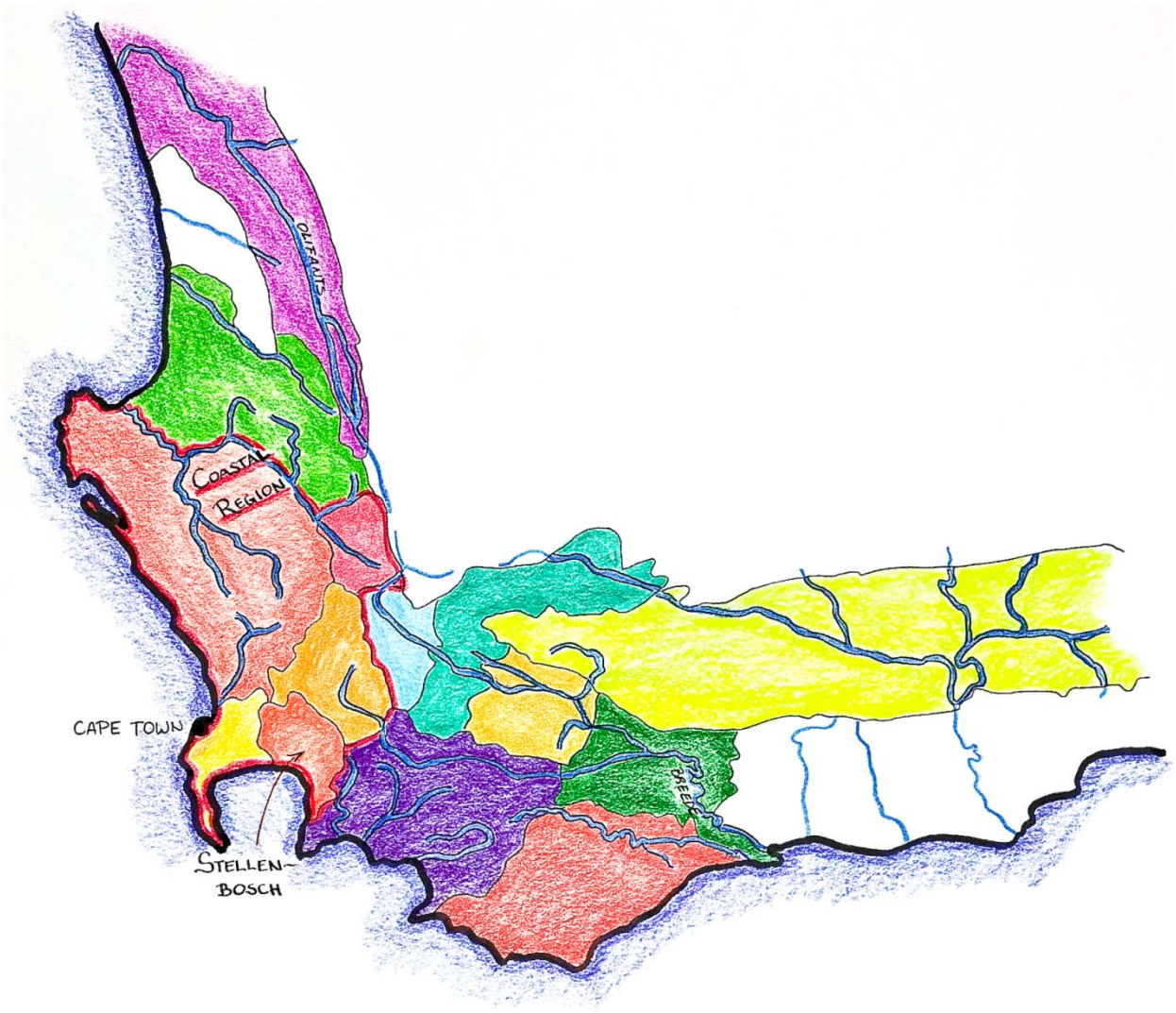
Map 19—California's North Coast



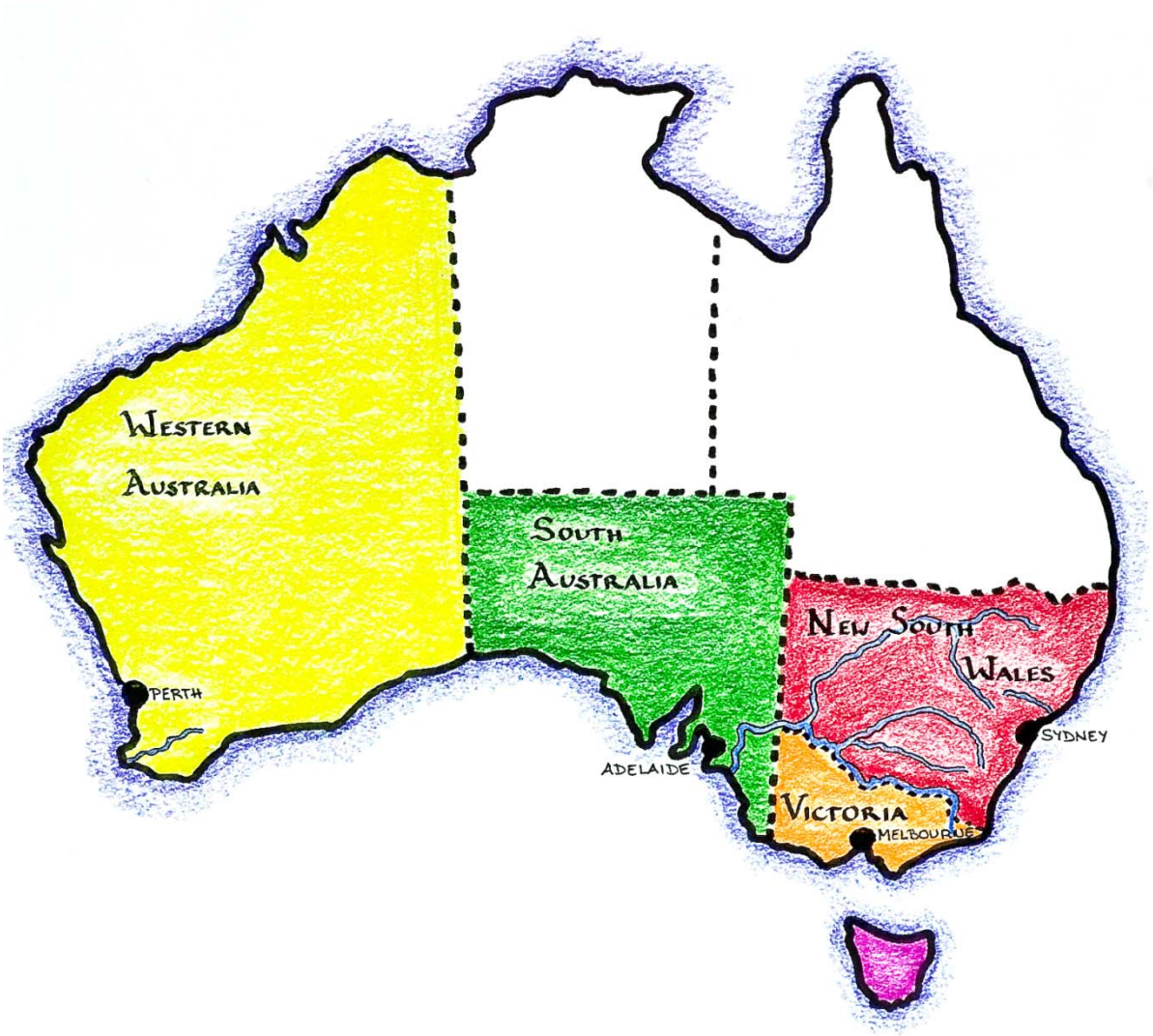
Map 20—Wine Regions of South America



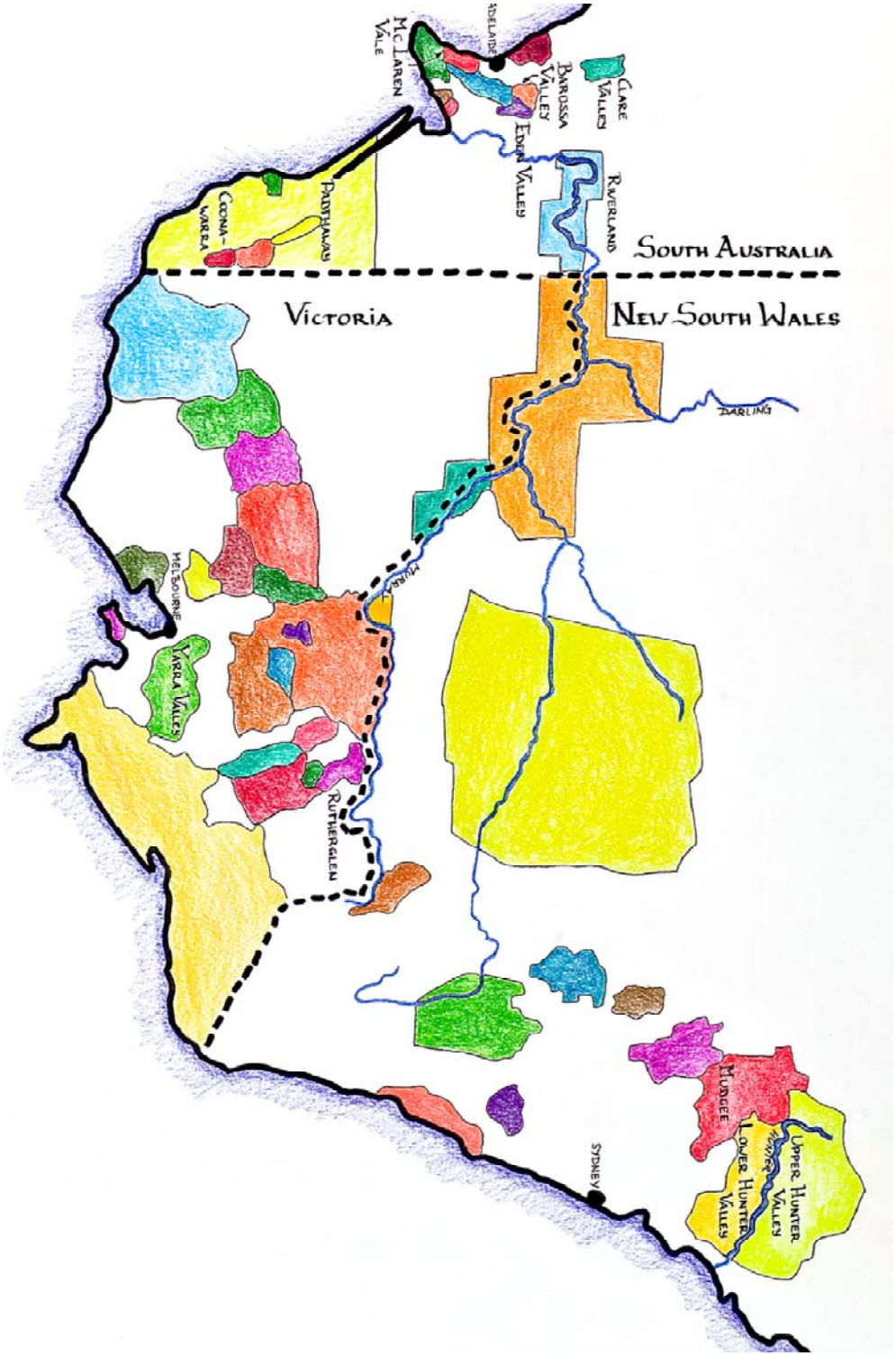
Map 21—Wine Regions of South Africa



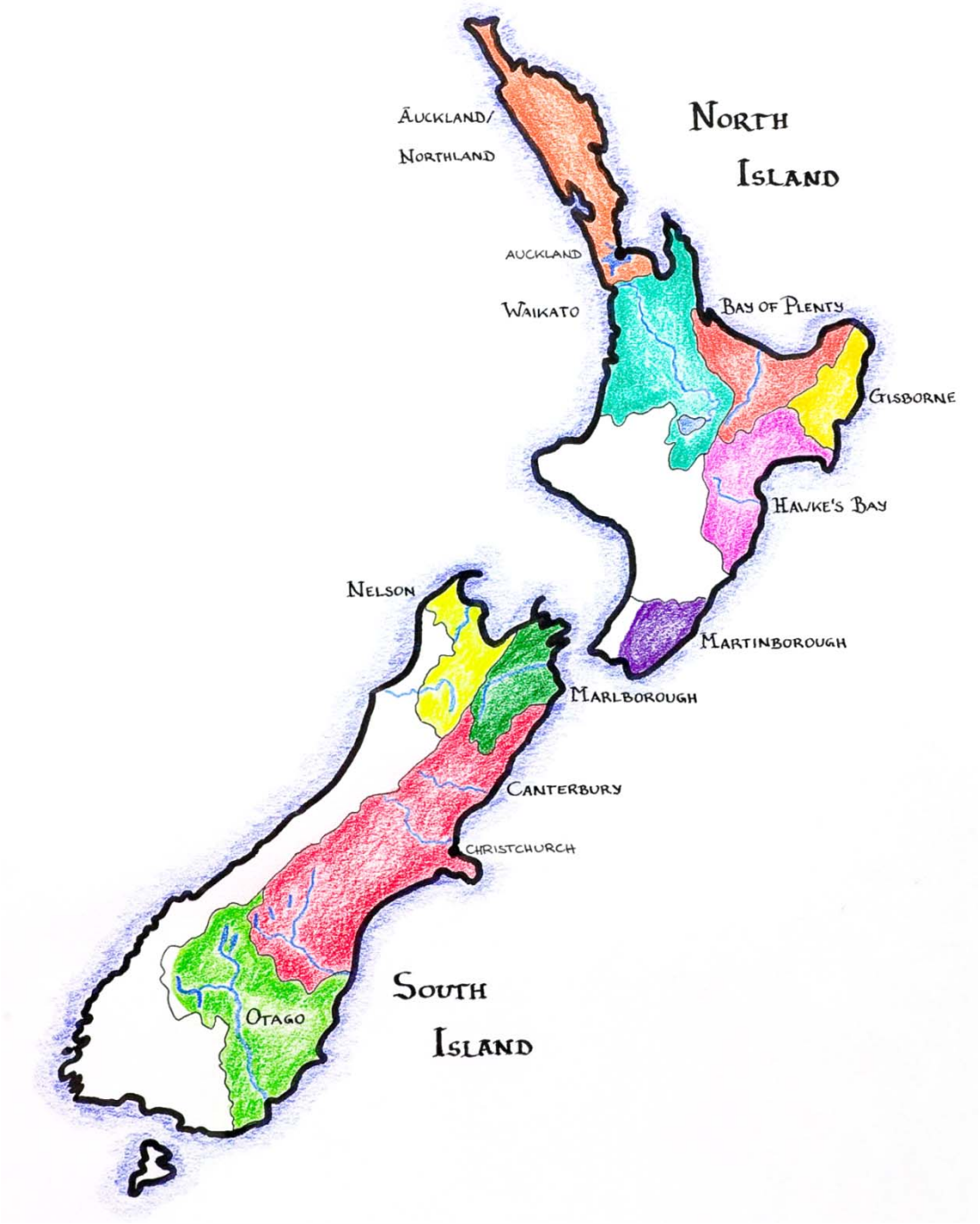
Map 22: Australian States



Map 23—Wine Regions of Australia



Map 24—Wine Regions of New Zealand



WFCL1 Glossary

Acid/Acidity	A component found in wine which provides a mouth watering sensation. Several different types of acid are present in wine.
Acidify	The addition of acid to a must or to a wine. This corrective winemaking practice is most common in warm climates.
Albariza	Local name for the white, chalky soil found in the finest vineyards of the Jerez region of Spain.
Alcoholic Fermentation	The conversion of sugar in solution into alcohol (ethanol, specifically) via the metabolic action of yeast.
Alluvium	Fine textured sedimentary soils formed from water-borne deposits of mud, silt, sand, and sometimes gravel. These soils, which are often quite fertile, are found in many regions around the world. Also described as alluvial.
Alsace AOC	North eastern French region on the border with Germany known primarily for aromatic white wines.
American Viticultural Area (AVA)	United States appellation system of permitted geographical boundaries. Typically abbreviated to AVA.
Amontillado	A style of Sherry. Essentially an aged fino which has lost its protective covering of flor. The word means 'in the style of Montilla,' a nearby Spanish region where the style likely originated.
Appellation d'Origine Controlée	Controlled name of origin. This is the French term for identifying products from specific places (appellations) which are produced using prescribed techniques and following prescribed regulations (control).
Aroma	Primary smells found in young wines and related to the grape variety or varieties from which the wine is made. See also Bouquet.
Arrested Fermentation	Fermentation that has been deliberately stopped before the yeast has metabolized all of the sugar using one of several available methods such as chilling, filtering, or fortifying.
Assemblage	French term for 'blend.'
Astringency	Tasting term referring to the drying effect caused by high levels of tannin.
Autolysis	The breakdown of yeast cells during lees-aging of wines. Yeast autolysis confers unique flavor profiles to wines. The term is most often used in reference to Champagne.
Back-Sweetening	Occasionally used term to describe the act of sweetening a wine after primary fermentation is complete. In Germany, the addition of

	Süssreserve to a fully fermented wine is an example.
Balanced	Wine in which all structural elements - acidity, sweetness, tannin, and alcohol - make a harmonious whole.
Barrique	French term (especially Bordelaise) for a 225 liter oak barrel.
Batonnage	French term for lees stirring.
Black Rot	A North American fungal disease (now spread world wide) common in moist, mild weather, which attacks young shoots, leaves and berries.
Body	A characteristic of a wine determined chiefly by its alcoholic strength. The more body a wine has, the thicker or heavier its feel on the palate.
Botrytis Cinerea	Latin name for the complex fungal disease which is alternately beneficial and disastrous in the vineyard. When it attacks healthy, fully ripe grapes, the disease is known as noble rot and can contribute to the production of some of the world's finest sweet wines. When it attacks unripe berries, however, it is known as gray rot and can severely affect yield and quality. See Gray Rot.
Bouquet	Complex and multi-layered scents in wine which develop as a result of maturation in bottle. See Aroma.
Budding	Initial vine growth in the early spring.
Cabernet Franc	Red grape variety from Bordeaux of importance on both the Left and Right Banks. The grape is also of great importance in the Loire and, globally, is often found wherever Cabernet Sauvignon and/or Merlot are grown.
Cabernet Sauvignon	Red grape variety from Bordeaux and one of the most successful of the 'international varieties.' Grown in just about every winemaking nation, Cabernet Sauvignon is versatile, adaptable and has the potential to produce wines of exceptional quality.
Canopy Management	Viticultural term describing the goal of improving fruit quality and vine health through manipulating, adjusting and managing the shoots and leaves of a vine.
Cap	Term for the skins that rise to the top – pushed up by carbon dioxide - during red wine fermentation.
Cap Classique	South African term for a Traditional Method sparkling wine. Also known as Méthode Cap Classique.
Carbonation	Addition of carbon dioxide to a beverage (wine or beer, for example) to provide the sparkle.
Carbonic Maceration	Type of rapid, whole berry fermentation carried out in a sealed container.

	The technique is designed to yield a wine with bright color, robust fruit flavors and limited tannin. Many local variations on the basic technique are practiced around the world.
Cava DO	The DO for Spanish sparkling wines made in the Traditional Method. The DO is uniquely spread around Spain, though in practice, most of the registered vineyards for Cava production are located in Catalonia.
Cellaring	Storing of wine for a period of time before selling or consuming it.
Chai	French term for a barrel room for aging at a winery.
Champagne AOC	Globally famous sparkling wine appellation located in cold climate northern France. The Champagne Method, defined by a second fermentation in the very bottle from which you drink, serves as the model for many of the world's best sparkling wines.
Chaptalize	A corrective wine making practice in which sugar is added to grape must (or fermenting wine) to increase potential alcohol and extend fermentation duration.
Chardonnay	White grape variety originating in France's Burgundy region and now widely grown the world over.
Charmat	Alternate name for tank method sparkling wine. The name is that of the method's inventor – Eugene Charmat.
Chemical	A general term used to describe various aromas and flavors found in wine.
Chenin Blanc	French white grape variety used for dry and sweet wines in the Loire Valley. The grape is also widely planted (though not widely respected) in California and South Africa.
Clarity	A tasting term referring to the presence or absence of visible particles in a wine.
Clay	Soil type made up of very small particles densely packed together. All soils contain some clay, which provides structure. In vineyards, clay is especially important for its ability to retain water.
Climate	Long term weather pattern of an area. Items considered include wind patterns, precipitation, temperature, hours of sunshine.
Clone	A vegetative propagation of a single parent plant.
Clos	French term for an enclosed (typically by a low wall) vineyard.
Closure	Seal on a wine container.

Cold Stabilization	Widely used wine making process in which finished wines are rapidly chilled in order to precipitate potassium acid tartrate. These tartrates, which are harmless, can look much like shards of glass.
Colheita Port	Vintage dated Tawny Port.
Continental	General description of a climate with four distinct seasons and marked differences in day and night time temperatures. The climate is characterized by short, hot summers and long cold winters with temperate springs and autumns.
Cooper	Barrel maker.
Cork	Natural substance derived from the bark of special oak trees and used to stopper wine bottles.
Corked	Wine that has been spoiled by a tainted cork (or barrel, sometimes), usually resulting in a musty smell or aroma. The chemical responsible is a chlorine-based one called tri-chloroanisole or TCA
Côte d'Or	District in Burgundy comprised of the Côte de Nuits and Côte de Beaune and known for producing high quality reds and whites from Pinot Noir and Chardonnay.
Coulure	Weather-related vine malady where fruit does not set properly and falls off.
Criadera	Level in the Solera system of fractional blending used in Sherry maturation. Typically translated into English as 'nursery'
Crown Cap	Common metal beer bottle closure also typically used to stopper Champagne during tirage.
Cru	French term meaning 'growth' or, by extension, a specific vineyard.
Crushing	Wine-making process during which the grape's skins are broken open and juice is made accessible to yeasts.
De-acidify	The process of removing acid from must or wine.
Dégorgement	Step in the traditional method of sparkling wine making whereby a plug comprised of dead yeast cells is removed from the wine.
Demi-Sec	French term for 'half-dry' in English refers to a moderately sweet wine.
Denominação de Origem Controlada	Portuguese law of controlled names of origin. Equivalent to France's AOC. Abbreviated as DOC.
Denominación de Origen	Spanish law of controlled names of origin. Equivalent to France's AOC. Abbreviated as DO.
Denominación de	Highest category in Spanish wine law of controlled names of origin.

Origen Califacada	Roughly equivalent to Italy's DOCG and reserved for high quality regions with distinguished histories. Abbreviated as DOC or DOQ in Catalonia. Formerly abbreviated as DOCa.
Denominazione di Origine Controllata	Italian law of controlled names of origin. Equivalent to France's AOC. Abbreviated as DOC
Denominazione di Origine Controllata e Garantita	Highest category in Italian wine law of controlled names of origin. Roughly equivalent to Spain's DOC. Abbreviated DOCG.
Destemming	Step in the wine making process where stems are separated from grape berries.
Development	Term used to describe characteristics associated with aged wine. See also Bouquet.
Disgorgement	English version of Dégorgement.
Dosage	Step in the traditional method of sparkling wine production following disgorgement where bottles are topped up with a mix wine and sugar.
Douro Valley	The valley of the Douro river and her many tributaries where grapes for Port are grown.
Earthy	A general term used to describe various aromas and flavors found in wine.
Filtering	Controversial step in the production of alcoholic beverages where unwanted substances are removed in order to clarify and/or stabilize the product.
Fining	Step in the wine making process where a material is added into the wine in order to remove unwanted substances in order to clarify and /or stabilize the wine.
Finish	Persistence of the tasting experience in the nose and mouth after swallowing. Wines can be said to have a long or short finish. Also referred to as Length.
Fino	A light, pale, and dry style of sherry uniquely matured in a Solera under a veil of flor.
Flavor	A term used to describe characteristics of a wine. See fruit, vegetable, herbs, wood, spice, floral, chemical, earth.
Flint	Soil type known as '*silex*' in French.
Flor	Spanish, meaning 'flower,' and used to describe the film formed on Fino category sherries by yeasts native to the Jerez region.

Floral	A general term used to describe various aromas and flavors associated with flowers found in wine.
Fortified Wine	A wine which has had its alcohol level increased by the addition of spirit.
Free Run Juice/Wine	Juice or wine which separates from grape solids without the need of additional pressure or pressing.
Frizzante	Italian term for a lightly sparkling wine.
Fruit	A general term used to describe various aromas and flavors associated with fruit found in wine.
Gamay	French red grape variety most commonly found in Burgundy's Beaujolais district.
Garnacha	Spanish name for the important red grape variety, Grenache. The variety is widely grown in Spain.
Geographic Indicator	Australian term for a delimited wine region. Abbreviated as GI.
Gewurztraminer	Variably colored but typically pink-skinned grape used to produce white wines in Alsace and other regions worldwide. The grape is an aromatic member ('Gewürz' is German for spice) of the Traminer family of grapes. Spelled Gewürztraminer in Germany. Traminer Aromatico in Italian.
Glacial Till	Soil type comprised of sediment left behind when a glacier retreats.
Gobelet	French term for bush training of vines, and which, in shape, which resemble a goblet.
Grafting	Melding the scion of one grape variety with the rootstock of another.
Granite	Type of crystalline bedrock found in many wine regions. Weathering can cause granite to break up and form a coarse textured soil.
Grauburgunder	One of the German synonyms for the French white grape variety, Pinot Gris. See Pinot Gris.
Gravel	Soil type comprised of medium to large stones.
Gray Rot	Malevolent form of Botrytis Cinerea. See Botrytis Cinerea.
Grenache (Noir)	The French name for the major red grape of Spanish origin known as Garnacha. The variety is widely planted in southern France and in several other countries worldwide. Synonym: Canonnau (Sardinia).
Gyropalette	Spanish developed machine used to riddle wines during the traditional method of sparkling wine production.
Harvest	Gathering in ripe grapes for processing into wine. This may be done either

	manually or mechanically.
Herbal	A general term used to describe various fresh and dried herb aromas and flavors found in wine.
Intensity (Nose)	Tasting term referring to the concentration and power of aromatic components in a beverage.
Lagares	Shallow troughs, often made of granite or cement in which grapes are traditionally crushed by foot in Portugal. Lagar in the singular.
Late-Bottled Vintage Port	Style of Port, aged in cask longer than a true Vintage, prior to bottling. It is, thus, much as it sounds: a vintage port bottled later than normal Vintage Port. Abbreviated as LBV.
Lees	Sediment that settles to bottom of a container, typically composed of dead yeast cells and other matter.
Limestone	Rock composed of calcium carbonate and an important subsoil in several of the world's wine regions.
Liqueur d'Expédition	French term referring to the stage of topping up the bottle of sparkling wine following disgorgement with wine and/or a wine and sugar mix.
Liqueur de Tirage	French term referring to the sugar, wine and yeast mix added to the base wines Traditional Method sparkling wine production which fuels the second fermentation.
Liqueur Muscat	Australian term for very sweet, fortified wines produced from the Muscat grape variety.
Loam	Soil type that is quite rich in organic matter and a mix of clay, sand, and silt.
Loire Valley	Very long river valley in central-western France which plays host to several important AOCs.
Macroclimate	The climate of a large area.
Malolactic Fermentation	Process where sharp malic acids are converted into softer lactic acids by the actions of specific bacteria.
Manzanilla	Particularly light and fresh type of Fino Sherry matured in the town of Sanlucar de Barrameda, Spain
Maritime	Temperate climate that is influenced by proximity to oceans or seas.
Mature	A wine which is ready to drink and which will not markedly improve with further maturation. Many fine wines maintain their peak of maturity for

	several years.
Mediterranean	Climate of warm to hot, dry summer conditions, and dry winters. Oddly, the expression 'Mediterranean climate' is often used to describe similar weather patterns found in regions very far away from the actual Mediterranean, such as parts of Australia and California.
Merlot	Red grape variety of south western French origin widely planted in other regions of the old and new worlds. Though widely planted in south western France, the early ripening Merlot is most celebrated in the wines of Bordeaux' Right Bank.
Mesoclimate	Small area (such as a section of a vineyard) with a unique climate determined by topographical features.
Microclimate	Climate conditions of a very small area, such as those directly surrounding the vine.
Millerandage	Abnormal fruit set in the vine caused by adverse weather, disease, or nutritional deficiency of the vine.
Moor	Generic name given to the North African people.
Muscat	Large (and likely ancient) family of grape varieties sharing in common intense aromatic character. Exists in many colors, the most celebrated of which is the small berried white grape known in French as Muscat Blanc à Petit Grains.
Must	Name for the unfermented liquid of crushed grapes, pulp, skins.
Must Weight	The measurement of the sugar content of grapes and grape juice used to gauge potential alcohol content.
Musty	A negative tasting term used to describe a fault in wine. See Corked.
Mutation	A spontaneous genetic change in plant material.
Nebbiolo	Important north west Italian red grape variety most commonly found in Italy's Piedmont region. Though Nebbiolo is found outside of Italy's Piedmont region, it is not widely planted in any other region.
Oïdium	French term for the vine disease known in English as Powdery Mildew.
Oloroso	Spanish word meaning "fragrant." Describes a style of non-flor affected Sherry with deliberate and desirable oxidative qualities.
Oxidized	Wine that has been exposed to oxygen. Some special wine styles are oxidized intentionally to produce a desirable result. In other styles, however, oxidation indicates a fault.
Palomino	White grape variety key to production of Sherry.

Pedro Ximenez	Spanish white grape variety important in Sherry (especially as a sweetening agent) and nearby Montilla Moriles. Sometimes written "Pedro Jimenez."
Peronospera	Alternative name for the vine disease, Downy Mildew.
Pierce's Disease	Bacterial vine disease native to the southern United States and typically spread by a vector (an insect, in this case, known as the glassy-winged sharpshooter). The bacteria poses a significant problem in the United States today.
Pigeage	French term for the technique of pushing down and breaking up the cap of a fermenting vat of red wine. English synonyms include "punch(ing) down," and "plunging."
Pinot Gris	A blue- to pink-skinned mutation of Pinot Noir, suitable to cooler climates and typically used to produce white wines. Synonyms: Grauburgunder and Rulander in Germany. Pinot Grigio in Italy.
Pinot Meunier	A red grape variety of the Pinot family, suitable to cooler climates and most often used as a component of sparkling wines, including Champagne.
Pinot Noir	Red grape variety of French origin, widely planted in cool climate regions around the world including Burgundy, Alsace, Oregon's Willamette Valley and New Zealand's south island. Wines from Pinot Noir are potentially of high quality.
Pipe	Classic wooden cask for Port, traditionally of varying size, but always larger than a standard barrique or barrel.
Port	Name for both the original fortified, sweet red and white wines of Portugal, as well as imitators of this style. True Port is produced in designated vineyards of Portugal's Douro River Valley.
Pruning	Activity related to the removal of shoots, canes and other growth on a grapevine.
Pupitres	Traditional racks in which remuage for Champagne (and other Traditional Method sparkling wines) is conducted.
Quality	A subjective summary term used to describe the overall impression of the wine.
Racking	Process of moving wine off of sediment by carefully transferring wine from one vat or barrel to another.
Remontage	French term for the technique in red wine fermentation where wine at the bottom of the tank is pumped up and over the floating cap of skins to

	protect the cap from drying out. Known as "pumping over" in English.
Remuage	French term for a technique involved in the production of Traditional Method sparkling wine wherein bottles are rotated and moved to concentrate sediment in the bottle neck prior to disgorgement. Known as 'Riddling' in English.
Residual Sugar	Sugars which remain in a finished wine.
Riddling	English term for the French Remuage. See Remuage.
Riesling	Important, potentially long-lived, and versatile white grape variety likely of German origin. The grape can be found in most of the world's cool climate regions and is the most widely planted grape in Germany.
Roman	Ancient Mediterranean civilization based in Rome which exerted profound impact on wine culture throughout Europe through its large colonial Empire.
Rootstock	The rooting (or underground) part of the vine. This, often Phylloxera resistant part of the vine, will typically be grafted to a Vinifera scion.
Ruby Port	General category of fortified wine from Portugal's Douro Valley typically aged in bottle rather than oak. Also a basic Port style
Rülander	One of the German names for the Pinot Gris grape variety.
Saignée	From the French verb saigner (to bleed). Technique of bleeding off watery juice after brief skin contact to produce rosé wines or concentrate remaining must in red wines.
Sangiovese	Major central Italian red wine grape found throughout the country but most famous in the wines of Tuscany. The grape is also increasingly planted in the New World.
Sauvignon Blanc	Noble high-acid, white grape variety of French origin capable of producing high quality dry and sweet white wines. The grape is widely planted in western France and in select areas of other European nations. It is also widely planted in the New World, and has found particular fame in New Zealand.
Schist	Medium grade, heat retaining crystalline metamorphic rock high in potassium and magnesium and considered desirable as a soil for fine wine.
Scion	Upper part of a vine where shoots, leaves, flowers and fruit grow. Most vines planted for wine production involve the grafting of a Vinifera scion to Phylloxera resistant rootstock.
Sec	French term meaning 'dry' or having little or no residual sugar.

Shiraz	Preferred Australian synonym for the French red grape, Syrah.
Slate	Hard gray-green platelike rock formed under pressure from clay, siltstone, shale and other sediments. Contributes significant character to wines, especially in Germany's Mosel and Rheingau regions.
Soil	The name given to the surface layer of the earth that interfaces the earth's atmosphere and rocky bedrock. Consists of various minerals, organic matter and varying degrees of fertility and moisture. Soil quality is of considerable importance for viticulture.
Solera System	A fractional blending system used in Sherry production and designed to ensure a consistent, high quality finished product
Sommelier	A title given to trained and knowledgeable wine professionals whose role includes the procurement, management and sales of wines and other beverages in hospitality settings.
Spice	A general term used to describe various aromas and flavors associated with spices found in wine.
Spumante	Italian term used to describe fully sparkling wines as opposed to those with less residual carbon dioxide which are called *frizzante*
Steen	South African name for the Chenin Blanc grape variety.
Sulfur	A naturally occurring element important in grape growing and winemaking due to its antioxidative, antibacterial and preservative properties.
Super-Tuscan	A now outdated term that once referred to high quality table wines made in Tuscany using non-traditional grape varieties or techniques. The original Super-Tuscans were Sassicaia and Tignanello.
Susceptibility	A term which measures the extent to which a grape variety will suffer if exposed to a particular pathogen or weather condition.
Süssreserve	German term meaning 'sweet reserve.' It is importantly used in a controversial corrective practice where a small quantity of unfermented grape juice is added to finished wine in order to achieve a more balanced finished product.
Sur Lie	French term describing just fermented wine left in contact with the yeast lees in order to extract more yeasty character and complexity.
Sweetness	Tasting term relating to the perception of residual sugar.
Syrah	Noble red grape variety most famous in France's northern Rhône Valley, but now grown throughout the world. See also Shiraz.

Tank Method	One of four common methods of sparkling wine production where the second fermentation takes place under pressure in large steel tanks. See also Charmat method.
Tannic/Tannin	A compound found in grapes and wood barrels that leads to a drying sensation in the mouth.
Tawny Port	General category of fortified wine from Portugal's Douro Valley typically aged in barrel rather than bottle thus leading to the tawny color.
Tempranillo	Important red grape variety used throughout Spain and parts of Portugal for the production of high quality red wines. The grape's many synonyms in Spain include Cencibel, Ull de Llebre, Tinto Fino, Tinta del Pais, and Tinta de Toro. In Portugal the grape is known as Tinta Roriz or Aragonez.
Terra Rossa	Literally 'red earth,' this term is applied to a type of iron-rich topsoil over a limestone subsoil most common in certain regions of South Australia.
Tinta Roriz	North Portuguese synonym for Spain's Tempranillo. Also, one of several dozen red grape varieties permitted for the production of dry red and fortified wines in northern Portugal's Douro Valley.
Tinto del Pais	Synonym for Tempranillo, used in Ribera del Duero and Rioja regions of Spain.
Tinto Fino	Synonym for Tempranillo, used in the Ribera del Duero region of Spain.
Tirage	French term for the sparkling wine making process whereby the second fermentation of base wines with yeast and sugar leads to a sparkling base wine. Also the length of time the wine spends in contact with the yeast after second fermentation. Eg. 3 years tirage.
Tired	A descriptive tasting term that refers to a wine that shows excessive age and has lost appreciable character.
Topping Up	The act of replacing lost wine in a bottle or barrel in order to limit contact with oxygen.
Traditional Method	English name for the premium method of sparkling wine production whereby the second fermentation and maturation take place in the same bottle in which the wine is sold. Called Méthode Champenoise within the boundaries of the Champagne AOC.
Training	Directing the growth of the green parts of the vine, often with the assistance of wires or stakes. Different training methods are employed for different qualities and styles of wines.
Transfer Method	Method of sparkling wine production in which the second fermentation takes place in bottle. Disgorging, aging and clarification, however, take

	place in a large tank before bottling under pressure.
Triage	French and English term used to describe the process of sorting grapes (often with the purpose of discarding unsuitable grapes or bunches) prior to winemaking.
Trichloranisole	Trichloroanisole 2,4,6 is a chemical compound arising from the action of chlorine on cork bark or wood and leads to musty unpleasant smells in those affected wines. See Corked.
Trockenbeerenauslese	Category of very late harvested German quality (QmP) wines which literally means 'select dried berry harvest'. The vast majority of grapes used for these rare, expensive wines are fully affected by botrytis cinerea.
Tuffeau	A calcareous, well-draining rock type common in France's Loire Valley, but also found in certain other regions of Europe.
Ull de Llebre	Synonym for Tempranillo in Spain's Catalonia region where the primary language is Catalan, not Spanish. The name means 'eye of the hare.'
Ullage	Air space inside a bottle or barrel.
Vegetal	A general term used to describe various aromas and flavors associated with vegetables found in wine.
Véraison	French term for the period of ripening when grapes increase in size, change color, and increase their sugar levels while decreasing their acid levels.
Vinification	The process of winemaking from the harvesting of grapes through the fermentation, maturation, finishing and packaging of the wine.
Vintage Port	A high quality fortified wine from Portugal's Douro Valley. Vintage Port is made from the highest quality grapes harvested in a single vintage, is bottled unfiltered, and is designed to mature in bottle for many years. Vintage ports are only produced in exceptional years.
Viticulture	A branch of the science of horticulture, viticulture is the process of grape growing for the purpose of making wines and includes such processes as pruning, training, spraying, fertilizing, irrigation, and may also include harvesting.
Vitis Vinifera	'The wine bearing grape.' The species of vine, indigenous to the Middle East and Europe, from which most of the world's wines are made.
Volatile Acidity	Naturally occurring organic acids in wine which, in excess, are deemed a fault. The most common volatile acid is acetic acid, the same responsible for acidity in vinegar (literally 'sour wine.')

White Port	A style of fortified white wine produced in Portugal's Douro Valley from white grapes. Often served as an aperitif, white ports range from dry to sweet and are occasionally deliberately oxidized.
Wine of Origin	Official system of regional wine classification established in South Africa in 1973. Wines bearing the WO seal must be produced in one of the designated geographical units, regions, districts or wards.
Wood	A general term used to describe various aromas and flavors associated with wood barrels, staves, or chips found in wine.
Yeast	A single celled plant, or thallophyte, vital for the conversion of sugar into alcohol and carbon dioxide during alcoholic fermentation.
Yield	An important statistic in wine production which measures how much juice, wine or grapes a vineyard produces.
Zinfandel	An important red grape variety originally from Europe, but now cultivated almost exclusively in California where it produces various styles of still pink and red wines as well as fortified wine. In Italy's Puglia region, the grape is known as Primitivo.