Mastering the Art of Enjoying Wine

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From Enology to Enosophy

By

Manuel Malfeito Ferreira
and Virgílio Loureiro

Cambridge Scholars Publishing

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FOREWORD

I do not know about you, but I think wine tasting was much more fun before the age of the internet. A friend would bring over a bottle of wine and we would gather around the dinner table, trying the wine and sharing our opinions. Today, there is so much information about wine at our fingertips that it is difficult to form an independent opinion about what we are drinking. If we find that a wine is inexpensive, we are tempted to conclude that it is mediocre. If we discover that the current vintage of a favorite producer earned fewer points than previous vintages, suddenly our taste buds notice that there are indeed a few points missing from our glass. After reading a review that exalts a wine's subtle violet aromas, our nose promptly notices a violet fragrance.

We read about critics who claim to identify in blind tests the producer and vintage year of wines from a certain region. Therefore, we feel inadequate—do we even have what it takes to appreciate great wine?

This new book, written by two highly respected university professors, Manuel Malfeito Ferreira and Virgílio Loureiro, promises to put the fun back into wine tasting. The book is full of historical, scientific, and practical information that will appeal to any wine lover. Most of all, the authors demystify wine tasting and propose a new approach that everyone can follow. This approach shuns the use of numerical metrics or the need to cultivate poetry skills to describe what is in our glass.

One of the book's central messages is that we all taste differently. Therefore, the best wine for me might not the best wine for you! The authors describe a simple test that proves this point. It is based on a clear liquid that contains a molecule called 6-n-propylthiouracil, or PROP for short. To some people, the liquid tastes like water; to others like muddy water; yet to others it has a bitter, unpleasant taste. People who find the liquid bitter are called "supertasters," the ones who taste muddy water are called "tasters," and the ones who compare the liquid to water are called "nontasters." The supertaster designation does not imply that people in this category have superior tasting abilities. It simply means that they have more taste buds that detect bitter flavors. These people tend to prefer wines that are subtler, with less extraction and alcohol. In contrast, non-tasters often prefer alcoholic wines with ripe fruit flavors.

The book exalts the virtues of tasting blind. Only this method ensures that we are free of preconceived notions about the quality of the wine. In a blind tasting, we are forced to use our senses to form our own judgment. The authors lay out a series of steps that help us in this process.

Unless the wine is served in black glasses that conceal its color, our first impression is always visual. Is it golden or pale yellow? Red or crimson?

Much more important than the color, the authors tell us, are the aromas. As we swirl the wine in our glass what does our sense of smell tell us? Are the aromas strong or subtle? Floral or earthy? Are they simple or complex?

Before we try the wine, what is our initial emotional reaction? Surprise, attraction, enthusiasm, approval, curiosity or aversion, perhaps even repulsion? Do we have high or low expectations for this wine?

Then the moment comes to taste the wine. Is it cold or tepid? The temperature has a significant impact on wine perception. Is the wine light or heavy? Is it sweet? Does it have acidity? What about astringency? Do the flavors remain in the palate for a long time or do they quickly vanish? How did the wine compare with our expectations?

Finally, we study how the wine evolves over time. Do the aromas and flavors change or stay the same?

The book is divided into five parts. The first part discusses the classical wine-tasting method. The second part discusses how the brain processes tastes and aromas. The third part describes the new tasting method proposed by the authors. The fourth part traces the evolution of wine styles and discusses how global trends in wine preferences have affected the types of wines produced today. Finally, the last part is devoted to the aesthetics of wine. It proposes an interesting new way of understanding wine that the authors call enosophy. An annex to the book teaches us how to harmonize food and wine to create memorable gastronomical experiences.

I find myself going back to this book, always discovering new insights about wine appreciation. Like a great wine, this book improves with time and leaves a lasting impression.

Sérgio Rebelo
Kellogg School of Management
Northwestern University
Chicago, October 2, 2021

FOREWORD TO THE PORTUGUESE EDITION

> "In France, the birthplace of wine for more than 2,000 years, people are drinking less and less, but, on the other hand, they are talking about wine more and more."
> —Gilbert Garrier, *Histoire sociale et culturelle du vin* (2002)

Never has there been so much talk about wine. Never has so much been written about and dedicated to wine throughout its long history. Never has so much media space been devoted to wine.

Today we have thousands of books about wine, some written by passionate amateurs, others by experienced journalists; we have books written by sommeliers and books written by scientists, historians, and professors who are experts in the field.

Nowadays, philosophers and psychologists also write great books on the philosophy of wine and the psychology associated with its fruition.

Professors Virgílio Loureiro and Manuel Malfeito Ferreira speak to us with the propriety and security of those who have a deep technical knowledge with regard to the science of wine and enology. Moreover, their passion, dedication, study, and experience allow them to approach the world of wine in a superior way, which involves and condenses all of those topics, from psychology and philosophy to technology and the science of wine, always with the greatest concern that wine is drunk for pleasure.

This brilliant book addresses difficult and complex topics in such a didactic and pedagogical way that reading it should be mandatory for every wine lover.

Readers will appreciate and learn scientific details essential to the understanding of the phenomena that thrill a wine drinker; yet these are described with an easy and comprehensive pragmatism that will help readers to evolve quickly in their ability to appreciate and understand wine.

"Wine has to be good," said French oenologist Jacques Puisais. The authors discover the right paths and lead us safely through their innovative methods of wine tasting so that the famous phrase "I don't understand anything about wine" stops being uttered by so many interested amateurs.

This work should also be part of any wine library, large or humble, as its reading is essential to "understand," definitively, what wine is.

José Bento dos Santos
President of the Portuguese Academy of Gastronomy
Lisbon, July 10, 2019

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A work with more than two decades of maturity necessarily involved many people, to whom we owe our gratitude. The first words of acknowledgment must be to our students, from the university or from other places, who, with their enthusiasm, their ready willingness to collaborate in scientific essays, the sincere way in which they asked us about the details of the new tasting method, and their many research works, encouraged us to write this book. Some of them, from the European Master in Viticulture and Enology and Gastronomic Sciences at the School of Agriculture in Lisbon (Instituto Superior de Agronomia, ISA), also contributed to the dissemination of the new method of tasting from European to South American countries, where our hope is that it will establish roots and bear fruit. We cannot forget, too, our mentors at the university, who introduced us to the fascinating world of research and the application of scientific knowledge.

The second word of recognition is for the wine producers to whom we provide technical support—namely, those of the wines Dona Berta, Dona Graça, and Quinta das Brolhas (Douro region); Quinta dos Termos and Casas Altas (Beira Interior region); Adega Cooperativa de Penalva do Castelo (Dão region), Casal do Ramilo (Colares, Lisbon region), and Amareleza and Cooperativa Agrícola da Granja (Alentejo region). They allowed us to observe, in practice, the strict concept of *terroir*, conduct numerous trials, and apply the new method to the preparation of blends. Over time, they honored us with their friendship, opened their homes to us, and brought us the joy of following the growth of their successors.

Our colleague Rodrigo Cunha, professor and researcher at the University of Coimbra, one of the personalities in neuroscience in Portugal, deserves a very special word of gratitude. In addition to having thoroughly reviewed and corrected our text on the brain, he made valuable suggestions and taught us to look at how the brain works from the viewpoint of a neuroscientist.

To our old friend José Bento dos Santos, gentleman of Portuguese gastronomes, a word of gratitude for the stimulating comments left in the foreword to the Portuguese edition, the thorough reading of the manuscript, and the wise advice with which he has always distinguished us.

We also depended on the attentive word of many colleagues and friends, such as Maria Margarida Gomes Guerreiro, a renowned specialist in

gastronomic sciences, and André Magalhães, famous chef and true encyclopedia on gastronomy themes. António Almeida Monteiro, faculty companion and committed Epicurean, was always available to read our texts. Ricardo Egito, PhD student, proved us with relevant technical information, and Christian Wetzel, a neurosurgeon, followed the birth of the new tasting method for several years and reviewed the first manuscript drafts. Maria Lúcia, Hugh Porteous and Keith Grainger corrected some of the English versions of the manuscript. Paul Chevreux, a Burgundy winemaker, passionate about Portuguese and Dão wines, shared many of the secrets of Burgundy wines.

Sérgio Rebelo, renowned professor of economics and finance, passionate oenophile with a talent for music, and a promoter of Portuguese gastronomy, was essential in the improvement of the English version. His continuous effort in making the text readable for an international audience is, above all, a sign of close friendship. To him and Alexander Chernev, dear professor of marketing, we owe the title of the present book and a unique debt of gratitude. Joan Gieseke admirably performed the difficult task of careful copyediting while Ana Duarte improved the graphical aspect of most figures, both working within a rather short period of time.

A final word for our families, from whom we stole time and affection to focus on our research and writing. To them we dedicate this book, to which they also contributed with their critical sense, constant support, and encouragement.

INTRODUCTION

When beginners want to deepen their critical sense of wine and enter the fascinating world of its aromas and flavors, they have to study, taste in an orderly way and, above all, try many different wines. When they start to read the experts' opinions, they are often frightened by their fluency, assertiveness, and self-confidence. Reading a description of a wine of this sort — "It reveals enormous complexity and elegance, combining fruit (orange peel and pulp, mandarin) and minerality (the aroma/flavor of granite is almost felt), all with remarkable purity and balance. The freshness in the mouth is perfect, the wine is full-bodied but light, shiny and sophisticated. Precious" — shakes their self-esteem to the core, and they recognize that learning how to taste wines will be a Herculean or even an impossible task. They generally adopt one of two attitudes: 1) they assume that the language is too hermetic and that they will never be able to be "experts," or 2) they are suspicious of so much eloquence and decide to forge ahead, expanding their knowledge. The former give up being experts, continue to taste as usual, add little or no refinement to their critical sense, and enjoy wine in their own way. The latter enroll in wine tasting courses, hoping, one day, to be part of the restricted group of experts and opinion leaders.

The appreciation and careful description of a wine seem, in fact, to be something reserved for a select group, those possessing a virtuous sensitivity to smells and flavors and endowed with a rare ability to verbalize the sensations. However, this impression cannot be further from reality. We are all endowed with the basic means—our senses—to carry out such a desired task. The secret lies only in the way we use our senses. If we resort to the classic wine tasting method, we will be compelled to ask our senses to identify the attributes of the wine and our literary skills to describe them in an attractive and "rigorous" way. However, it is easier, more fun, and more agreeable to use the brain to interpret the emotions that the aromas and flavors of wine, through the senses, provoke.

While recognizing that it is a difficult task, owing to the sophisticated way in which wine tasting is taught and diplomas or certificates are awarded, we intend to demonstrate that the classic method, generally used worldwide, is not the most appropriate. It does not improve the critical sense of those who just want to get more pleasure from a wine. However, more

importantly, we intend to explain a new concept of wine tasting, based on the description of the taster's emotions, which will make learning easier and faster for the beginner. For this reason, this book is directed, preferentially and primarily, to beginners who are eager to know more about and appreciate with discretion the wines they taste. Professionals will also be able to take advantage of the proposed method, as it facilitates communication with consumers. The text is accompanied by references to scientific studies that will allow the themes to be broadened by those who wish to do so. Although our intention is not an exhaustive exploration of these themes, our approach will enable the reader to verify the reason for the facts on which we base our interpretations of wine tasting.

This book essentially represents the English translation of the book *Vinho Sentido, sem descrever aromas ou atribuir pontuações*, published in 2019 by Plátano Editora, to whom we are indebted for first trusting in our project. In English, we could have chosen the translated title *Wine Sense, without Describing Aromas and Giving Scores*, but the title as it is now appears to better capture the essence of the book. Several sections have been updated with recent research published by us or by other scholars.

The book is divided into five parts. The first attempts to consolidate tasting protocols and describe classic tasting methodologies, including the sensory descriptors organized in tasting sheets. Part II is dedicated to the way the brain processes the information received by the senses, highlighting its fragility as a measuring instrument and the multiplicity of individual responses to the same stimulus. Thus, the reader will be in a position to understand the origin and rationality of the new method based on emotional responses, described in detail in part III. This description follows a sequence analogous to that of the classic technique, but using responses of an emotional nature that will be interpreted according to the styles of wine being tasted. Part IV addresses topics related to the evolution of consumer preferences. The description of wine styles throughout history will allow us to understand the volatility of fashions and the way in which winemakers are able to adapt wines to the trendiest flavors. The evaluation of wines as objects of aesthetics is provided in part V, which includes our views on the concept of *terroir* and on the apparently undervalued wine blending practices. Finally, the book includes an appendix showing the Portuguese wine denominations mentioned along the text and another one describing the essentials of food pairing, further justifying why we consider wine to be a major symbol of Mediterranean civilization.

PART I —

CONVENTIONAL TASTING APPROACHES

1

THE FIRST STEPS TOWARD A SYSTEMATIC TASTING METHOD

Since it was first produced eight thousand years ago, wine has been considered an exceptional product. It has always been prized by the elite, and it is the drink of choice in moments of celebration.

We have, at least since the New Egyptian Kingdom, written evaluations of the quality of various wines. These records often describe aromas and tastes and mention the place where the wine was produced. For example, the *amphorae* in Tutankhamun's tomb (1332–1322 BC) are inscribed with the origin, the year of harvest, and the name of the winemaker.[1] Wine quality plays a central role in a fifth-century BC law protecting grape growing in the Greek island of Thasos that is probably the first archetype of the contemporary denomination system.[2] In Rome, Pliny the Elder's *Natural History* lists Italian regions according to the quality of their wines. In the Middle Ages, Cistercian monks from Burgundy recorded the place of origin of the best wines.[1]

The first denominations of origin emerged in the seventeenth and eighteenth centuries. In 1644, the city council of Wurzburg, in German Franconia, defined several wine regions. In Tuscany, in 1716, Grand Duke Cosimo III decreed the demarcation of four wine regions. In Hungary, in 1737, vineyards were classified according to the quality of Tokaj wine.[3] In Portugal, in 1756, the Marquis of Pombal demarcated and regulated the Port wine region. Perhaps he was influenced by the Tokaj demarcation experience, which he might have learned about during his stay as a diplomat in Vienna, Austria, between 1745 and 1749. Later, in 1855, Bordeaux wine dealers established the *châteaux* classification system based on the price of Médoc and Graves wines. During the first decades of the twentieth century, Dão, Madeira, and Vinhos Verdes in Portugal, Rioja in Spain, Chianti and Asti in Italy, and Champagne and Bordeaux in France were among the first to create rules to ensure the quality of the wine labeled as produced in these regions.

Even though the denomination of origin system seeks to identify superior wines, a sensorial evaluation of wine properties was not initially

required as part of the certification process. This requirement only became mandatory, for the first time, in 1945 for the French appellation of liqueur wines *Pineau de Charentes*. It took a long time for sensory analysis to be acknowledged as necessary for certifying wine origin, as surprising as that may seem today.[4]

We have, since antiquity, wine tasting notes that describe wine attributes, often by resorting to poetic language. However, it was only in the middle of the last century that wine tasting was systematically performed.

Despite the absence of a standardized tasting method, there was significant consensus about desirable wine characteristics. Even before the demarcation of the Port wine region, English merchants agreed that a good Port wine had "a potable fire in the spirit, a burning gunpowder, a writing ink in the color, a Brazil in the sweetness, and an India in the aromatics" (Response of the Veteran Commissioners to the New Instructions of the Factory, 1754).[5]

This description does not conform to the current canons of wine tasting. Nevertheless, it mentions all the important wine properties: the color, the aroma, and the flavor, as well the inebriating character that lessens the hardships of life and inspires the spirit.

Wine tasting pioneers

After the Second World War, the development of systematic tasting methods helped turn sensorial analysis into a scientific discipline. This evolution was also spurred by the growth of the food industry. It became clear that consumers who understood the desirable characteristics of a product were more likely to buy it. As a result, the quality of food and beverages began to be evaluated not by their producers but by groups of trained experts.[6]

The food's hedonic characteristics became a key selling point of differentiation for products sourced in far-away markets. When the food was produced in local gardens, raised in the stable, or fished in the sea, there was no need to describe what was produced or to convince others to like it. The food was good and did not need to be explained. We experienced this attitude when we visited a Burgundian *vigneron*. We tasted more than a dozen wines, each from different plots. All of our comments were received with a polite but casual "*tout à fait"* (indeed), as if to say: "I don't care what you think! If you don't like the wine, there are others who do!"

Thus, it is understandable that the first enology treatises, written in France during the nineteenth century, barely mention wine tasting. These

writers were more concerned with recognizing flaws than with praising virtues. Quality was defined as the absence of defects.

The first works that systematize the act of tasting were written by people linked to production, research, and teaching or by those related to the wine trade.

The first *Traité d'Œnologie*, published in 1947 by Jean Ribéreau-Gayon,[7] contains a chapter devoted to wine tasting that focuses exclusively on the mouthfeel. The University of Bordeaux, the Beaune Viticultural School in Burgundy, and the University of California, Davis, endorsed the first tasting manuals. Authors such as Émile Peynaud[8] and several generations of the Ribéreau-Gayon family, Max Léglise,[9] Maynard Amerine, and Edward Roessler[10] are today unavoidable references of the dawn of systematic wine tasting. The French authors favor detailed wine descriptions, while American authors prefer to focus on measurable characteristics that can be studied using statistical methods. We have added very little to this first generation of work on wine tasting.

The importance of Michael Broadbent,[11] from the auction house Christie's, admirer and friend of Émile Peynaud, is comparable to that of his academic counterparts. Surprised to see that enology manuals failed to discuss wine tasting, Broadbent published a pamphlet on wine tasting in 1962. He turned it into a book in 1968, and in 1975 he published the more comprehensive *Wine Tasting, A Practical Handbook on Tasting and Tastings*.

These authors are likely to have influenced each other. Peynaud confessed that "French oenologists teach how to make wines but the English *masters of wines* explain how to drink it." [8] It was this shared experience, based on the tasting of thousands of wines, which allowed them to identify the key drivers of wine quality. These pioneers created schools in both universities and wine trade organizations, where well-known professionals such as winemaker Michel Rolland and critics and writers such as Robert Parker, Michael Schuster,[12] Hugh Johnson,[13] and Jancis Robinson,[14] among many others, sought knowledge and inspiration. Worldwide, there are currently hundreds of tasting manuals in which the reader can find descriptions of the classical approaches with the personal imprint of each author.

Lesser-known precursors

The history and description of modern wines was written by Cyrus Redding, and it is an exceptional book that aimed to "guide the reader in the search for good wine, and tend to confirm the preference for what is really excellent", as stated in the introduction. It was first published in London in

1833, and it fairly represents the progression of works from Classical Greek and Roman authors, the byzantine Xth century encyclopaedia *Geoponika*, XVth century Spanish monastery work manuals and English or French XVII/XVIIIth texts to present-day enology treatises[a]. In 1839, the author also released the *Every man his own buttler*, full of buying advice for the most well-known wines of the period. Then, in 1860, the publication of *French wines and vineyards; and the way to find them* was justified by the recent availability of French wines in the UK due to tax reductions. The author's aim was to educate "the corrupted vinous taste of the country"!

In 1898, California's agricultural technical services translated a tasting manual written by G. Grazzi-Soncini,[15] an Italian professor from the Royal School of Viticulture and Enology in Piedmont. The book discusses how to recognize wine defects. In addition, it describes, for the first time according to the author, how to serve wine.

In 1911, the first chair of the Department of Viticulture and Enology, Frederic Theodore Bioletti, published the bulletin *The Principles of Wine-making* at the University of California, Berkeley. William Vere Cruess began his work as a yeast researcher and, together with Amerine, published *Principles and Practices of Winemaking* in 1935. Both participated in wine competitions where they realized the need for an objective tasting method.[16]

In 1921, George Saintsbury published in London the book *Notes on a Cellar-Book.*[17] The index of the book contains all the topics discussed by modern best-selling books on wine and beverages. The author even anticipates the recent wave of interest in beer and cider. Still, the discussion of how to taste wine was incipient but insightful.

Also in 1921, P. Maigne printed *Nouveau Manuel Complet du Sommelier and du Marchand de Vins* in Paris.[18] It is a comprehensive manual with a description of the main wine regions in France and the world as well as a detailed explanation of how to operate a winery. The description of the tasting is embryonic; the author provides a detailed description of the so-called wine diseases to help readers identify wine flaws.

In Bordeaux, Peynaud recognized the influence of André Vedel, in the definition of taste balances, and of Jules Chauvet, for the original way in which he demanded a rigorous aromatic description of wines. Despite not being an academic, Chauvet was at the origin of the ISO standardized glass[b] and the establishment of French designations of origin.[4] He is also

[a] Many of these ancient sources are made freely available by Google (https://books.google.com).

[b] The International Organization for Standardization describes the standardized tasting glass in its 1977 publication ISO 3591 and in the revised edition of this publication printed in 2016.

recognized as the forerunner of the natural wine movement, but he has left fewer written references than Peynaud.

These publications are just a few examples that laid the groundwork for the evolution of wine tasting from a minor subject in early winemaking treatises to its current popularity.

2

SYSTEMATIC TASTING SCORE SHEETS

The harmonized method for consolidating different sensory aspects that contribute to wine quality can be traced back to the score sheets, with punctuations up to 100, used in American wine shows by the mid-nineteenth century.[c] The first academic tasting sheets appeared at the beginning of the twentieth century. The scientific interchange was already common, as demonstrated by a leaflet reporting two lessons on wine tasting, given in 1948 by Maynard Amerine at the Port Wine Institute in Portugal. Table I.1 shows the characteristics emphasized by different authors as drivers of wine quality. It is interesting to compare these approaches with those used today.

The first score sheet popularized by Amerine was prepared by reducing the maximum score to 20, based on the observation that the variability of responses reached 30 points on the scale of 100. The so-called Davis score sheet evolved by modifying the weight given to the different attributes, keeping 20 as the maximum score (table I.2).

The form proposed by the International Organisation of Vine and Wine (OIV) and the International Union of Oenologists (UIOE), two of the most important international organizations related to the production, marketing, and regulation of wine, scores wines from 40 to 100, with different weights attributed to aspect, aroma, flavor, and overall assessment (table I.2).

In Australia, the Faculty of Enology at the University of Adelaide adapted the Davis sheet to a system called 3-7-10, where 3 points are for appearance, 7 for smell, and 10 for palate and flavor, for a total of 20. It is possible to assign scores to one decimal place, expanding the range by ten times. The use of 100- or 20-point scales does not translate into statistically different evaluations of the same wine.[19]

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[c] A detailed description of these early quality evaluations in wine shows is found in Aaron Nix-Gomez, "That we may know the relative value of their own manufacture": The spread of the 100-point wine scale in late 19th century America, Hogshead (blog), January 6, 2015, https://hogsheadwine.wordpress.com/tag/history of100pointscale/ (accessed on August 1, 2021).

Table I.1 Earliest systematic 100-point tasting sheets and respective authors, adapted from Amerine (1949).

		Blaha	Prostoserdov	Cruess			Brunet	Amerine
				Dry red	Dry white	Sweet		
Appearance		12	20	15	20	10	15	10
Color		12	20	10	10	10	-	10
Bouquet		12	20	15	10	15	35	15
	Varietal character	20	20	-	-	-	-	-
	Volatile acidity	-	-	15	15	10	-	10
Taste		20	20	15	20	15	50	15
	Total acidity	-	-	10	10	10	-	8
	Sweetness	-	-	10	10	20	-	8
	Body	12	-	-	-	-	-	6
	Astringency	-	-	10	5	-	-	10
Global quality		12	-	-	-	10	-	8

Source: Maynard Amerine (1949), The organoleptic wine assessment, a summary of a lesson given at the Port Wine Institute (in Portuguese).

Wine magazine and online classifications

The score sheets described above try to summarize the quality of the wine with a single score. These sheets were designed to help wine producers improve the quality of their wines. They were not intended for consumers without prior training or for retailers and distributors. But score sheets quickly became popular outside of wine-producing circles.[16,20]

There is no current shortage of tasting sheets; there is even one entitled the "perfect sheet." Nevertheless, all of these score sheets are nothing more than sophisticated versions of the initial ones. From the moment the first Anglophone wine magazines with global reach appeared, scores became the preferred means of concisely communicating the quality of wines (table I.3).

American magazines use the 100-point system pioneered by Robert Parker in *The Wine Advocate.* English magazines prefer the 20-point system. Interestingly, *Decanter* switched from Michael Broadbent's 1- to 5-star rating to a 100-point system.[21] Jancis Robinson prefers a 20-point scale (Jancis Robinson, "How We Score," https://www.jancisrobinson.com/how-we-score).

Table I.2. University of California (Davis) and International Organisation of Vine and Wine (OIV) score sheets.

UC Davis[a]		OIV[b]		
Appearance	0 – 2	Visual	Limpidity	1 – 5
Colour	0 – 2		Aspect other than limpidity	2 – 10
Aroma	0 – 4	Nose	Genuineness	2 – 6
Aroma flaws	0 – 2		Positive intensity	2 – 8
Sugar, dryness	1 (Weak), 2 (Appropriate)		Quality	8 – 16
Body and mouthfeel	1 (Absent), 2 (Good)	Taste	Genuineness	2 – 6
Flavour, balance	1 – 2		Positive intensity	2 – 8
Astringency	0 - 2 (reds and rosés) (add 2 points for whites)		Harmonious persistence	4 – 8
			Quality	10 – 22
Overall appreciation	0 – 2	Harmony	Overall judgment	7 – 11
Total	3 – 20	Total		40 – 100

[a] Camilo Peña, Annamma Joy, and Karine Lawrence, "Rebranding Wine Using Sensory Profiling Data: A Case Study" (retrieved on September 17, 2021, from https://www.siroccoconsulting.com/wp-content/uploads/2018/12/Rebranding-wine-using-sensory-profiling-data-A-case-study-2.pdf). Half points are possible, doubling the scale.

[b] "Resolution OIV/Concours 332a/2009: OIV Standard for International Wine and Spirituous Beverages of Vitivinicultural Origin Competitions" (retrieved on September 17, 2021, from http://www.oiv.int/public/medias/4661/oiv-concours-332a-2009-en.pdf).

Wine critics stress that their scores reflect the preferences of individuals or a small group of tasters. Still, high scores have become synonymous with wine quality and are essential for commercial success.[22] Their dominance in the world of wine leaves little room for imagining other ways of conveying wine quality. The advent of social networks encouraged the creation of sites that compile tasting notes, using mathematical algorithms to create what is called *collective intelligence*.[22] It is important to keep in mind that the quality of the output produced by these algorithms depends on the quality of the inputs. No algorithm, no matter how powerful, can change the fact that tasting scores are highly subjective metaphors, as explained in chapter IV.1.

Table I.3 Scores used in selected international wine magazines.

Wine Advocate[a]	Wine Spectator[a]	Wine Enthusiast[a]	Decanter[b]	World of Fine Wine[c]
96–100 Extraordinary	95–100 Classic; a great wine	95–100 Superb. One of the greats	98–100/19.5–20 Exceptional	19–20 A great wine
90–95 Oustanding	90–94 Outstanding; superior character and style	90–94 Excellent. Extremely well made and highly recommended	95–97/18.5–19.25 Outstanding	17–18.5 Highly recommended
80–89 Very Good	80–89 Good to very good; wine with special qualities	85–89 Very good. May offer outstanding value if the price is right.	90–94/17.25–18.25 Highly recommended	14.5–16.5 Very Good
70– 79 Average, well done	70–79 Average; drinkable wine that may have minor flaws	80–84 Good. A solid wine, suitable for everyday consumption	86–89/16–16.75 Recommended	12.5–14 Good
60–69 Below the average, flawed	60–69 Below average; drinkable but not recommended	Only wines scoring 80 points or higher are published	83–85/15–15.75 Commended	10.5–12 Simple
50–59 Unacceptable	50–59 Poor; undrinkable, not recommended	-	76–82/13–14.75 Fair	7.5–10 Without flaws but tasteless
-	-	-	70–75/11–12.75 Poor	0–7 Flawed
-	-	-	50–69/10.75 Faulty	-

[a] Delmas et al. (2016).[23] Parker punctuation: minimum, 50 points; color and appearance, 5 points; aroma, 15 points; flavor and aftertaste, 20 points; overall quality and aging potential, 10 points.

[b] Chris Mercer, "How to Read Decanter Wine Scores: The 100 Point Scale," *Decanter*, February 20, 2016, https://www.decanter.com/learn/how-to-read-decanter-wine-scores-the-100-point-scale-294338/ (accessed August 2, 2021).

[c] Bywater and Burk (2008).[21]

Classification of wines without assigning scores

The ubiquitous use of wine scores gives the impression that there is no other way to tell consumers which wines they should buy. Is there another way to convey information about wine quality? Forty years ago, Patrick Dussert-Gerber, an independent journalist with a background in law, gave an eloquent answer to this question. He decided to share his experience in various editions of the *Wine Guide* (www.guideduvin.net). Dussert-Gerber based his work on a simple principle: "You cannot truly enjoy a wine without knowing who makes it." Instead of emphasizing wine scores and tasting notes, he put the spotlight on the *vignerons*, which are the artists in the wine world.

To appreciate painting, cinema, or music, it is key to understand the style, passions, and feelings of the artist. The wine world is no different.

Avoiding scores, Dussert-Gerber devised a Table of Honor in which he mentions the producers who impressed him when he visited their wineries, strolled through their vineyards, and tasted wines from different harvests. He uses a five-level evaluation: "Honor Award," "Excellence Award," "Satisfactions," "Winners," and "Hope." This scale encourages producers and is useful for consumers.

The vocabulary used in these synthetic score sheets is often incomprehensible to the layperson. The score sheets include a lot of technical jargon as well as words and meanings that are difficult to translate from one language into another. Analytical tasting sheets, in which each tasting parameter is broken down into different gradations, are even more hermetic. Therefore, the next chapters briefly explain how the conventional tasting methodologies work and how to interpret sensorial descriptions.

3

THE TECHNIQUE AND TERMINOLOGY OF CONVENTIONAL TASTING

The literature on the tasting technique is vast, and it is possible to find numerous variants. The conventional perspective that we describe in this chapter reflects the information contained in the manuals already cited as well as others, such as the various editions of *Wine Tasting: A Professional Handbook*, by Ronald Jackson.[24] By standardizing the protocols, it is possible to compare several wines or compare how different evaluate the same wine. At this point, our purpose is just to familiarize the reader with the conventional approaches and explain the meaning of the most common vocabulary.

Preconditions

Tasting is subjecting a wine to the examination of our senses. Thus, it is paramount to focus on the task. For this reason, a tasting room cannot have any noise, movement of people, smells, or uncomfortable temperatures—in general, anything that can distract from the wine. Temperatures within 18 and 20˚C and good daylight (or artificial light with 300 lux) are essential. To taste well, we cannot be tired and must have a little appetite. Therefore, the ideal time to taste is before lunch, between 11 am and 12:30 pm, or before dinner, between 5 pm and 6:30 pm. Tasting after meals is discouraged, as is using perfume, drinking coffee, chewing gum, or having just brushed your teeth.

Tasting glasses must all be the same and preferably standard. The aforementioned ISO glass (easily available on the market) is recommended, but any tall, smooth, colorless bulb-shaped crystal cup is suitable. The volume of wine must not exceed one-third to one-fifth of the volume of the glass. For the ISO glass, about 50 mL of wine suffices, so a 0.75 L bottle is enough for fifteen tasters.

You should not try a large number of wines in each session. For those just starting, three to four wines are a good number; for professionals, it is excessive to try more than twelve wines. Between wines, it is advisable to

drink mineral water (tap water smells like chlorine) and to eat unsalted crackers or plain wheat bread to avoid saturation of the olfactory epithelium and the palate. Using a spitting bowl is also advisable. There should be one bowl per taster because some are uncomfortable with the act of spitting. The bowl should be as discreet as possible, a simple opaque glass is sufficient.

The temperature of the wines is also decisive for the evaluation and must be chosen according to the type of wine and the time spent in the glass, as the temperature rises until it reaches the ambient value (table I.4). When comparing wines, the most important thing is for the wines to be at the same initial temperature, so that, with warming, the differences between the wines are better understood. The temperatures listed in table I.4 are general guidelines that can be changed depending on the wines being tasted. As a rule, the sweeter or more effervescent a wine is, the lower its initial temperature must be. This rule implies that sweet sparkling wines must be wines tasted at a temperature that almost anesthetizes the taste buds.

Finally, the attitude with which people approach a wine tasting says a lot about their experience and expertise. Impatience, distraction, or conversation reveal who is there just to have a drink—which is great—but not to evaluate what they are drinking.

Table I.4. Recommended tasting temperatures.

Wine types	Temperature range (ºC)
Whites	8–12
Aged whites	12–16
Rosé	12–16
Reds	16–20
Young reds	14–16
Effervescent	6–8
Sweet/Fortified	12–16

The conventional tasting technique

We begin a wine tasting by simply pouring the wine into the glass. First, we appreciate the color and appearance. Next, we smell it, using the so-called orthonasal route. Then we put a sip in the mouth, and smell it again, this time via the retronasal route. Let us see how to do it systematically following the conventional wine tasting sequence with the help of table I.5. The exercises proposed in appendix 1 are advised to facilitate learning.

1. Visual appreciation

The first step is to use our vision ("the eyes are the first to drink"). After seeing the wine against a light source, it is advisable to tilt the glass at 45º on a white surface. At this stage, observe:

1st - Cleanliness, which gives an idea of the solids suspended in the wine;

2nd - Color, which indicates age and style, although it can sometimes be misleading;

3rd - Intensity or depth, given by the transparency of the wine rim at the edge of the glass;

4th - Fluidity, through the tears or legs, gives an idea of the viscosity and alcohol content of the wine. The glass must be thoroughly washed and cleaned, otherwise our perception of fluidity might be affected.

5th - Effervescence, in the case of sparkling wines, by observing the diameter, intensity, the persistence of the bubbles, and the formation of a string of bubbles (*cordon de bulles*) from the bottom of the glass.

2. Olfactory appreciation (orthonasal test)

Several methodologies are used here, but we suggest one adapted from Max Léglise:[9]

1st - With the glass still and tilted at 45º, slowly bring the nose closer to the glass, assess the intensity, and detect the most delicate and volatile odors through the orthonasal route;

2nd - Shake, rotating the glass in a discontinuous way, in 15- to 20-second intervals, to detect the notes of less volatile odors, placing the nose inside the glass, between the rotations;

3rd - Shake the glass continuously to detect the heaviest odors and the subtlest defects.

In addition to the intensity (figure I.1), this phase allows for evaluating the diversity of smells and the aromatic complexity of the wine.

3. Gustatory appreciation (flavor)

Bring a volume of wine equivalent to two tablespoons (about 10 mL) to your mouth and move it across the surface of the palate. Then, suck in a little air through your mouth and swallow. With attention, you will experience several sensations:

1st - Attack, sensations after 2 to 3 seconds, which allow the identification of the dominant flavors;

2nd - Evolution, which lasts about 10 seconds and allows for the assessment of the intensity and persistence of flavors and tactile sensations (for example, basic tastes, astringency, body, temperature, burning, and tingling);

3rd - Spit or swallow and then, with an empty mouth, evaluate the flavor that corresponds to the combination of the mouth aroma through the retronasal route, with the intensity and persistence of tastes and tactile sensations over time. In this way, the aftertaste is evaluated, with sensations that can last for more than 30 seconds.

4. Repeat the test

Repeat the procedure about 10 minutes later and look for differences from the initial assessment. In this way, you can see the evolution of the wine in the glass, which differs according to the style of the wine.

5. Final assessment

The final appreciation integrates all sensations using descriptors such as those related to balance, complexity, elegance, prediction of the aging potential, and persistence in memory (memorability). Table I.5 describes the most common terms and the methods of evaluating these qualities according to the most recognized tasting manuals. While aromas and tastes are described by analytic properties, these overall parameters are synthetic evaluations that often reveal more of an emotional connection of the taster to the wine than an objective assessment. They constitute the fundamental qualitative criteria to assess wine from an aesthetic perspective and so they will be discussed after understanding how the brain processes sensory stimuli.

Figure I.1. Representation of orthonasal aroma intensity measured using a ruler.

Smells, aromas, and flavors

The aroma, smell, odor, scent, fragrance, or perfume are synonymous corresponding to the perception of chemical molecules that are released or volatilized in the wines, although in wines it is more common to use the first term.

Aromas are usually classified as primary (from the grape), secondary (from the fermentation), and tertiary (the result of evolution during aging). The word *bouquet* usually refers to tertiary aromas.

The smell is perceived by the orthonasal route or by the retronasal route, after putting the wine in the mouth. In this second case, we have the "mouth aroma," which corresponds to *flavor* defined by the combination of aroma, taste, and tactile sensations (International Organization for Standardization, standard ISO 5492-2008).

Recommendations for the olfactory test

To taste a wine accurately, you can't smell it too much! The purpose of the first time you smell it is to get as much information as possible; the second, to capture what escaped the first time; and the third, eventually, to clarify doubts. From then on, the brain becomes confused because aroma molecules saturate the receptors. To recover, put the glass aside and smell it 5 to 10 minutes later, as it may reveal much more than what was initially perceived.

These basic rules evidence the knowledge of the taster. You can smell it alternately in each nostril to check if you have different orthonasal sensitivity. This procedure is not possible through the retronasal route unless you close one nostril.