



Sweet, Reinforced and Fortified Wines

Grape Biochemistry, Technology and Vinification



Edited by

**Fabio Mencarelli
Pietro Tonutti**



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DEDICATED TO OUR FRIEND AND SCIENTIST, BERNARD
Bernard Donèche
1950–2012

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Fabio Mencarelli

DIBAF, University of Tuscia
Viterbo, Italy

Pietro Tonutti

Institute of Life Science
Scuola Superiore Sant'Anna
Pisa, Italy

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Contents

List of Contributors	ix
Glossary	xiii
Introduction	1
<i>Fabio Mencarelli and Pietro Tonutti</i>	
PART 1 HISTORY	
1 Sweet Wines: The Essence of European Civilization	5
<i>Attilio Scienza</i>	
PART 2 VINEYARD MANAGEMENT, ON-VINE AND POSTHARVEST GRAPE DEHYDRATION, VINIFICATION	
2 Management of the Vineyard	29
<i>Oswaldo Failla, Laura Rustioni and Giancarlo Scalabrelli</i>	
3 Technology and Management of Postharvest Dehydration	51
<i>Fabio Mencarelli and Andrea Bellincontro</i>	
4 Biochemistry and Physiology of Dehydrating Berries	77
<i>Pietro Tonutti and Claudio Bonghi</i>	
5 Changes in Volatile Compounds	91
<i>Claudio D'Onofrio</i>	
6 Changes in Phenolic Compounds	105
<i>Danilo Corradini and Isabella Nicoletti</i>	
7 Changes in Physical and Mechanical Properties of Dehydrating Berries	119
<i>Luca Rolle and Vincenzo Gerbi</i>	
8 Management of Vinification and Stabilization to Preserve the Aroma Characteristic of Dehydrated Grape	131
<i>Luigi Moio and Paola Piombino</i>	
9 Methods of Vinification to Preserve the Colour in Red Grape Passiti Wines. Aleatico: a Case Study	145
<i>Riccardo Cotarella</i>	

10	Role of Yeasts in Sweet Wines	153
	<i>Juan C. García-Mauricio and Teresa García-Martínez</i>	
11	Botrytis Infection: Grey Mould and Noble Rot	159
	<i>Andrea Vannini and Gabriele Chilosi</i>	
12	Vinification and Aroma Characteristic of Botrytized Grape	171
	<i>Pierre Louis Teissedre and Bernard Donèche</i>	
PART 3 THE WINES		
13	Amarone	189
	<i>Daniele Accordini</i>	
14	Moscato Passito	205
	<i>Daniele Eberle</i>	
15	Italian Passito Wines	215
	<i>Attilio Scienza</i>	
16	Pedro Ximénez and Malaga	251
	<i>Juan J. Moreno-Vigara and Juan C. García-Mauricio</i>	
17	Tokaj	269
	<i>Zoltán Kerényi</i>	
18	Vin de Paille	277
	<i>Pierre Louis Teissedre, Bernard Donèche and Kleopatra Chira</i>	
19	Botrytized Wines: Sauternes, German Wines	285
	<i>Pierre Louis Teissedre and Bernard Donèche</i>	
20	Ice Wine	301
	<i>Nikolin Musabelliu</i>	
21	Port	305
	<i>Tim Hogg</i>	
22	Marsala	319
	<i>Andrea Zanfi and Silvia Mencarelli</i>	
23	Notes on Other Sweet Wines	327
	<i>Fabio Mencarelli</i>	

PART 4 MARKET AND MARKETING

24 Sweet Wine Market	333
<i>Renzo Cotarella</i>	
25 A Strategic Framework for Marketing Sweet, Reinforced and Fortified Wines	337
<i>Alberto Mattiacci and Costanza Nosi</i>	
Analytical Index	351
Grapes and Wine Index	355

List of Contributors

Daniele Accordini

Cantina Valpolicella Negrar
Negrar, Verona, Italy
Email: daniele.accordini@cantinaneegrar.it

Andrea Bellincontro

DIBAF, University of Tuscia
Viterbo, Italy
Email: bellin@unitus.it

Claudio Bonghi

Department of Agronomy, Food, Natural
Resources, Animals and Environment
University of Padova
Legnaro, Padova, Italy
Email: claudio.bonghi@unipd.it

Gabriele Chilosi

DIBAF, University of Tuscia
Viterbo, Italy
Email: chilosi@unitus.it

Kleopatra Chira

Faculty of Oenology, Université Bordeaux
Segalen
Institut des Sciences de la Vigne et du Vin
Villenave d'Ornon, France
Email: cleochira@yahoo.com

Danilo Corradini

National Research Council (CNR) Institute
of Chemical Methodologies
Montelibretti, Rome, Italy
Email: danilo.corradini@imc.cnr.it

Renzo Cotarella

Marchesi Antinori srl
Firenze, Italy
Email: renzo.cotarella@antinori.it

Riccardo Cotarella

Falesco Winery
Montecchio, Terni, Italy
Email: riccardo.cotarella@falesco.it

Bernard Donèche (deceased)

Faculty of Oenology, Université Bordeaux
Segalen
Institut des Sciences de la Vigne et du Vin
Villenave d'Ornon, France

Claudio D'Onofrio

Department of Agriculture, Food and
Environment
University of Pisa
Pisa, Italy
Email: c.donofrio@agr.unipi.it

Daniele Eberle

Terredavino SpA
Barolo, Cuneo, Italy
Email: eberle@terredavino.it

Osvaldo Failla

Department of Agricultural and
Environmental Sciences
University of Milan
Milan, Italy
Email: osvaldo.failla@unimi.it

Teresa García-Martínez

Department of Microbiology
University of Córdoba
Córdoba, Spain
Email: mi1gamaj@uco.es

Juan C. García-Mauricio

Department of Microbiology
University of Córdoba
Córdoba, Spain
Email: mi1gamaj@uco.es

Vincenzo Gerbi

DIVAPRA – Food Technology Sector
University of Torino
Grugliasco, Torino, Italy
Email: vincenzo.gerbi@unito.it

Tim Hogg

Escola Superior de Biotecnologia
Universidade Católica Portuguesa
Porto, Portugal
Email: thogg@porto.ucp.pt

Zoltán Kerényi

Corvinus University of Budapest
Institute Vitivinicole Research Station
Kecskemét
Kecskemét, Hungary
Email: zoltan.kerenyi@uni-corvinus.hu

Alberto Mattiacci

Department of Communication and
Social Research
University of Rome, La Sapienza
Rome, Italy
Email: alberto.mattiacci@uniroma1.it

Fabio Mencarelli

DIBAF, University of Tuscia
Viterbo, Italy
Email: mencarel@unitus.it

Silvia Mencarelli

Wine public relations consultant
Pisa, Italy
Email: silviaelettramencarelli@gmail.com

Luigi Moio

Department of Food Science
University of Naples Federico II
Portici, Naples, Italy
Email: moio@unina.it

Juan J. Moreno-Vigara

Department of Agricultural Chemistry
University of Córdoba
Córdoba, Spain
Email: qe1movij@uco.es

Nikolin Musabelliu

Winemaker
Toronto, Ontario, Canada
Email: nikolinmusabelliu@yahoo.com

Isabella Nicoletti

National Research Council (CNR) Institute
of Chemical Methodologies
Montelibretti, Rome, Italy
Email: isabella.nicoletti@imc.cnr.it

Costanza Nosi

Department of Management Sciences
University Roma Tre
Rome, Italy
Email: cnosi@uniroma3.it

Paola Piombino

Department of Food Science
University of Naples Federico II
Portici, Naples, Italy
Email: paola.piombino@unina.it

Luca Rolle

DIVAPRA – Food Technology Sector
University of Torino
Grugliasco, Torino, Italy
Email: luca.rolle@unito.it

Laura Rustioni

Department of Agricultural and
Environmental Sciences
University of Milan
Milan, Italy
Email: laura.rustioni@unimi.it

Giancarlo Scalabrelli

Department of Agriculture, Food and
Environment
University of Pisa
Pisa, Italy
Email: gscalabrelli@agr.unipi.it

Attilio Scienza

Department of Agricultural and
Environmental Sciences
University of Milan
Milan, Italy
Email: attilio.scienza@unimi.it

Pierre Louis Teissedre

Faculty of Oenology, Université Bordeaux
Segalen
Institut des Sciences de la Vigne
et du Vin
Villeneuve d'Ornon, France
Email: p.teissedre@u-bordeaux2.fr

Pietro Tonutti

Institute of Life Science
Scuola Superiore Sant'Anna
Pisa, Italy
Email: pietro.tonutti@sssup.it

Andrea Vannini

DIBAF, University of Tuscia
Viterbo, Italy
Email: vannini@unitus.it

Andrea Zanfi

Wine journalist
Grosseto, Italy
Email: info@andrezanfi.it

Glossary

Note to the Reader:

A glossary of the main technical, scientific and commercial terms, referring to grapes and wines, used in this book is provided below.

Dehydration: The dynamic process of water loss from the berries occurring on-vine (over-ripening, late harvest, icing, *Botrytis*) or after harvest under more or less controlled environmental conditions.

Drying: The process of intense water loss of the berries after harvest carried out under open-air conditions.

Fortified wines: Wines produced with freshly harvested or dehydrated berries by adding alcohol or spirits.

Raisins wines: A commercial category of wines obtained from more or less dehydrated grapes regardless of the method of dehydration or drying.

Reinforced wines: Dry wines (generally, but not exclusively, red) characterized by higher alcohol and secondary metabolites content produced with partially dehydrated berries (weight loss less than 25% of initial fresh weight).

Straw wines: A commercial category of wines (e.g. *Vin de paille*) obtained from grapes partially dehydrated after harvest on straw (e.g. straw mats) or similar organic material.

Withering: The consequence of the long dehydration process in grape berries.

Introduction

Fabio Mencarelli¹ and Pietro Tonutti²

¹*DIBAF, University of Tuscia, Viterbo, Italy*

²*Institute of Life Science, Scuola Superiore Sant'Anna, Pisa, Italy*

The history of wine is a story of sweet wines. The first wines used by human beings were sweet wines; not because they selected these wines above others, but because of the climatic conditions where the grapes were harvested and processed, and the way in which these grapes were processed, which did not permit a complete fermentation. The wine was probably a mixture of alcohol, sugars and acetic acid, and to reduce the off-flavours in the wine, ancient peoples used to add honey and dry aromatic herbs. The Mediterranean basin is the cradle of these sweet wines, which were also defined, erroneously, as dessert wines. The climatic conditions of this basin were favourable for leaving the grapes on the vine to over-ripen, or for picking the bunches and allowing them to dry in the sun and wind. Most of the commercially well-known sweet wines are from the countries bordering the Mediterranean Sea; but not all these wines are sweet, a few of them are dry and full bodied such as Amarone in Italy. For this reason, we like to define these wines not simply as 'dessert wines' or 'sweet wines', but as wines made from grapes undergoing a dehydration process which can occur on-vine or off-vine. In addition, several wines that are traditionally and commercially very important, coming or not from on- or off-vine dehydrated berries, are fortified with alcohol. Thus, the world of this type of wines is very complex, and with this book we have tried to provide readers with the most exhaustive pool of information.

The book is divided into four sections. The opening chapter provides an historical overview and description of the cultural impact of sweet wines through the centuries in the Mediterranean area. The chapters in Part 2 cover the different technical and scientific aspects of the whole production chain, from the field to the cellar. The various solutions and diverse options for managing the vineyard and the dehydration process are thoroughly described. The following chapters specifically focus on the changes, at physiological and physico-chemical levels, characterizing the berries during on-vine and postharvest dehydration, and in relation to noble rot infection. The second section ends with the chapters extensively reporting issues, methods and technical solutions for optimizing vinification in order to achieve the best-quality sweet wines. Part 3 of the book comprises 11 chapters specifically dedicated to well-known reinforced, fortified or sweet wines produced in different areas of the world. By describing the specific characteristics and quality traits, these chapters highlight the cultural diversity and variety of protocols applied in this segment of the wine industry. The final section, Part 4, deals with the sweet wine market and marketing, and not only reports current statistics and figures, but also presents opportunities and strategies for the future.

There are several publications dealing with these special wines in many of the producing countries, but they are just guide books. Thanks to the contribution of a number of different

authors, well-known specialists (researchers and winemakers), we believe that this book is comprehensive in its descriptions of technical issues, scientific topics and the characteristics of the most important special wines.

Finally, given that these wines are often 'niche' products, not all of them are included in this edition. Any additional information from the readers on other special wines produced around the world will mean that this book can be considered a success, and will be greatly appreciated for future updates.

Viterbo/Pisa, October 2012

Part 1 History

1 Sweet Wines: The Essence of European Civilization

Attilio Scienza

Department of Agricultural and Environmental Sciences, University of Milan, Milan, Italy

*Quis non malarum quas amor curas
habet haec inter obliviscitur?*

(Among such delights, who cannot fail to forget
the sad cares that passion may bring?)

Horace, *The Book of Epodes*

1.1 HISTORICAL PATH

The aim of this chapter is to cover the broad subject of sweet wines throughout European civilization. A historical path will guide us from their origins to the present date.

The following are the constant elements in the production and trade of sweet wines:

- sweet wines have always been considered as luxury goods and imported by merchants;
- ordinary wines were normally produced and consumed within the local area, whereas sweet wines were generally produced close to commercial areas such as harbours;
- for light wines, climates and soils are key factors in order to obtain certain features; the quality of sweet wines, however, is more influenced by technology in the vineyard (choice of grape variety, late harvest) and in the cellar (concentration and stabilization techniques);
- consumption of sweet wines has always been regarded as fashionable rather than as a complement to food (unlike dry wines); as with all fashions, the consumption of sweet wines has had its own ups and downs, but its importance in the production of wine on a worldwide scale is always high, even though the market offers a full range of alternative drinks.

In *Les Memoires de la Mediterranée* (1999), Braudel claims that it is no great effort to feel at home within the familiar Mediterranean environment, whether in Venice, Provence, Sicily, Malta or Istanbul. There is an endless theme that links these places with their glorious past, through the names of their wines (especially the sweet wines). These places are the borderline between prehistory and our traditional history. We can identify this story with the birth of the first agricultural civilization not just in the Mediterranean region, but throughout Europe: the Fertile Crescent revolution.

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1.2 ORIGINS

Wine is the symbol of the ancient peoples who developed in the Mediterranean region: the cradle of civilization. The first Sumerian evidence in the Fertile Crescent goes back to 3000 BC. The myth of wines spread throughout Aleppo, Ebla, Mori, Ugarit: the tablets of Paleobabylonian archives contain names of feasts and banquets where wine played a central role.

The origin of the word wine, '*vine*', in Hittite means 'stick of the Bacchants'; this identifies the sacredness of its use. Throughout the Mediterranean, we have similar words in the various linguistic groups. Even if they do not sound close, they share a common semantic root: *wo-no* in Linear B, *woinos* in Greek, *wo-i-no* in Mycenaean, *g-vino* in Georgian, *yayin* in Hebrew, *vinum-vinum* in Etruscan and *vinum* in Latin.

The Sumerian pictograms indicating the vine, the vineyard and wine are very similar to the ancient signs TIN and GESTIN. They are interpreted as a grape bunch and a pointed amphora. The correct translation of the signs of the ideogram GESTIN-HEA is not 'white wine', as it was believed in the past, but 'vine + sun', which literally means 'dried vine', therefore 'raisin' (McGovern, 2003).

GESTIN SA also means that wine is red, and it is followed by several adjectives such as 'good, sweet, pure, new'.

The adjective -LAL occurs quite frequently too; it means honey. As a matter of fact, honey was frequently added to fermenting wine must, in order to preserve it longer; in Linear B script, the ideogram 'wine' is often modified by associating the word 'honey'. The ideogram GES-IN DURU (interpretation reported by the *Chicago Hittite Dictionary*) means 'fresh grapes', while GESTIN generally indicates wine; if associated with DU-GA it means first quality wine; -VS means second quality and HALLUM is a wine which becomes vinegar. In the Mari archives, an account book of the court mentions the existence of a bitter wine and of a good one: the expression SHA SHATE' BELIYA means '[of the quality] which is drunk by my lord'.

Why was this wine sweet? The clay tablets on which the administrator of the royal warehouses carefully recorded wines constantly show the logogram GESTIN-HAD-AV or GESTIN UD, indicating dried grapes; they were widely used for food rations, as an offer to the gods or as an ingredient in medical preparations.

The red wine SA GESTIN KUB was diluted with water in order to better symbolize blood: this is clearly stated in many Ugaritic prayers of the Near East.

In the Hittite and Thracian traditions, offering sweet wine was a privilege of the king: a precise social symbol of power. In the Hittite tradition, it is through the power of sweet wine that the King-Priest *Ullikummi* is able to capture the snake *Illuyanka*. This representation often occurs in Greek mythology: a further piece of evidence of the assimilation of the oriental culture.

LA'L GESTIN-KU was the sumerogram for a natural sweet wine that could not be consumed in ordinary situations; it was precious, so it had to be offered to the gods (Gennari, 2005).

There is evidence of a preference for the sweet taste of wine also during the Egyptian transition: the jars in the tomb of Tutankhamun contained sweet wines. It is actually during the period of the New Empire that we have the first evidence of the use of heat to concentrate must; this technique was used to produce sweet and alcoholic wines for long storage.

Almost 1500 years BC, when Egypt was ruled by the Hyksos, a Semitic people from Syria and Palestine, sweet wines started to be produced in the town of Avaris, in the Nile delta. This was discovered in the mid 1990s, when archaeologists found a structure for pressing

grapes and identified a vineyard called *Kaenkeme*, where a wine ‘... which was sweeter than honey’ was produced. Through the analysis of remains inside the ollas, molecular archaeology confirmed that the wine was red. The red writings (*ostraka*) on the jars stated the production areas, the style of the wine and the addition of resin or terebinth (*Pistacia terebinthus*). The indication ‘sweet’ (*vip*) is the most frequent one, even though it could also have marked the addition of figs and honey.

Vine and wine are also often indicated by the term *kur*. *Kurum* has the semantic value of red wine, *karanu* in Akkadian, *carenum* in late Latin and *careno* in ancient Italian, with the meaning of cooked must. This shows how the practice of drying grapes and concentrating must through heat had the same importance in the production of sweet wines. These two techniques were often used together. There is a city in the inland of Judea called Lachish where archaeologists found an Iron Age jar (second millennium BC) with ancient Semitic inscriptions like ‘wine made with black raisins’, ‘smoked wine’, ‘very dark wine’; this confirms the habit of mixing wine from dried grapes with must that was concentrated through direct contact with fire, which gave the wine a smoky-caramel taste.

The terms that we find in Ninurta’s *Georgics*, dating back to the second millennium BC, refer to sweet red wines, with an explicit reference to blood, as they were used in rituals. For these purposes, people chose vines yielding wines that were light in colour and had a yellow rim, so that the wine looked like blood without the addition of water, as required by the ceremonial. This is the reason why in Magna Greece and Sicily we can still find such grape varieties as Frappato, Nerello and Gaglioppo, low in total anthocyanin and high in cyanin, which is responsible for the light yellow nuance in wines, especially those obtained by drying grapes.

In the ancient Greek tradition, men who were responsible for the community agreed that sweet wine was the best way to establish a new relationship with foreign people (*philoxenie*).

Homeric poems are full of episodes, actual *topoi*, where sweet wine was the unifying element of relationships among men.

In Book VII of *The Odyssey*, among the Phaeacians, Zephyrus blows and dries the ripe grapes in the sun; in Book IX, Ulysses offers Polyphemus the sweet, black wine that was given to him by Maron; in Book XI a sacrifice is offered mixing milk, honey and sweet wine; in Books XII, XIII and XIV there are references to the colour of wine, which is red or looks like fire.

In the Homeric poems there are many descriptions of wine evidencing the poet’s attention to the aesthetic side of wine. Colour was almost always red: purple wine (to extinguish the funeral stake), rubicund nectar, rubicund wine, reddish wine, black wine, vermilion liquor, ancient wine, purple nectar, rosé nectar, sweet wine, black nectar (Maron’s sweet wine), soft wine, incorruptible wine (sweet, alcoholic?), soft liquor (sweet?), smoky wine (alcoholic), sweet grape’s liquid, tasty wine, powerful wine.

1.3 DIFFUSING THE MYTH OF WINE

The wine known as wine *par excellence*, which was traded by the Phoenicians and Greeks throughout the whole of the Mediterranean area, where the symposium ritual was spreading, was almost certainly a sweet wine. It was a luxury good destined for the upper classes and it was also among the most valuable goods for exchange. Only wines with high sugar levels could travel for such trade purposes.

We usually ascribe the improvements of viticulture and enology to the meeting of the oriental and occidental cultures. In fact, new productive varieties were introduced, along with drying techniques to improve the ageing potential of wine. Moreover, new containers were more resistant, easier to produce and to transport: further facilitating trade. The most important innovation was the intuitive introduction of the Greek *emporium*. Wine was transformed from a simple alimentary product to a bargaining chip; moreover, it was associated with the worship of a god who was the protector of viticulture. Such an interpretation, which could seem ideological, is broadly justified by the fact that wine and vine have a huge symbolic importance in the European culture, especially in religion and politics (for ruling and controlling). Possibly, this is the reason why innovation was limited to small daily steps forward by the growers to lighten their work load or to improve the productivity of their plants. Enology underwent even slower changes, and ancient techniques still survive in some parts of the Caucasus, Portugal and Greece.

Production techniques were highly influenced by the development of the local economies and consumption habits. In places characterized by subsistence farming, wine was produced for self-consumption. In such cases, the main features of mixed farming did not change until the arrival of the American diseases. In those places where grapes were grown for wine trade, farming and winemaking techniques underwent several changes. Vines were located along the main trade routes and near harbours, thus they benefited both from proximity to a border (improvement by comparison) and from consumer feedback, demanding new wines made using new techniques. The development of colonies in South America, South Africa and Australia, together with the increasing cost of transport, led to the production of wines and spirits that, through fortification, could both resist long trips and be less bulky to transport. Innovation led to the selection of the most suitable grape varieties for over-ripening (or for noble rot) and to winemaking techniques involving the addition of high levels of sugar and alcohol; as distillation spread, alcohol was used to fortify musts and wines.

Over the centuries, winemakers tried to meet the taste of consumers who, according to the current fashion, wanted wine to be white, red, alcoholic, fortified, sweet, and they adapted viticulture and winemaking according to the market.

The so-called ‘permanent evolution’ phase started towards the end of the seventeenth century, due to three key factors: knowledge, competition and investment. Producers aimed at improving quality wines for long ageing, sparkling and sweet wines.

The development of chemistry and fermentation allowed the improvement of yeasts and the introduction of sulphur dioxide (SO₂) as an antiseptic and a preservative. The other huge factor was the industrial production of bottles and corks.

1.4 CLIMATE CHANGES, THE DEVELOPMENT OF VITICULTURE AND THE PRODUCTION OF SWEET WINES

During the third millennium BC, the habits of the Sumerians and their relationship with the gods reveal that the earth was threatened by unpredictable violent forces; heavy rainfalls arrived inopportunately, flooding entire villages. A rupestral relief from the third millennium shows the Hittite King pouring sweet wine for the god of the sky, Tarhunna, asking him to save his vineyards. A Hittite tablet about climate changes states ‘([Observe]) raisins. As they preserve wine in (their) heart, [. . .] (even) you, god of the tempest, preserve prosperity, vigour, long life (and) the joy of the king, of the queen (and) of the children in (your) heart’.

This prayer is justified by the climatic changes that were destroying the vineyards. Drought became so severe in Mesopotamia at that time, that most southern towns were abandoned and new residential and trade centres were established in the northern part of the region, towards Anatolia. New contacts with the inhabitants of the towns of Ebla and Mari, together with commercial relationships with the Mediterranean ports of Cananea and Ugarit, enhanced the diffusion of vine and the production of sweet wines in Thrace and Greece from the second millennium BC. The serious drought that struck Anatolia, Mycenae and Crete in 1200 BC was only the starting point of a series of famines that pushed the so-called *Peoples of the Sea* to invade the more fertile Mediterranean lands, causing wars and devastation that led to the end of the Egyptian kingdom and pushed the Greeks towards the west, founding colonies in Italy, France and Spain, where they started the production of sweet wines.

There was then another long period characterized by favourable climate conditions for the development of agriculture (especially grain). Around the first century AD, the climate changed once again in northern Europe. In 92 AD, Emperor Domitian had to forbid viticulture in all Roman territories outside Italy, so that grain could be grown in its place, since drought made it impossible to grow enough in Sicily and northern Africa.

Emperor Probus also grappled with climate change. Two hundred years after Domitian, he had to encourage viticulture along the borders by introducing Pannonian grape varieties, since wine supply from the *Venetiae* region was extremely reduced due to the mismanagement of water in those territories, and the grape varieties from Campania and Latium struggled in the cold weather of the Danube and Rhine regions.

Also in Latium, growers struggled to late harvest their grapes to produce sweet wines, and therefore suffered competition from Greece, whose wines were very expensive, but demand was so high that they were sold anyway. The Latin Georgics (Cato, Pliny, Columella) report about an alternative way of producing sweet wines by concentrating must up to a quarter or a half of the original volume. This product was then added to fermenting wine must in various proportions (from 1/4 to 1/30).

Around the year 1000, Europe benefited from a warm climate that extended viticulture towards high latitudes, such as Scotland, and very high altitudes, up to 1200 m above sea level. This phase was called *optimum climaticum* and viticulture, together with olives, expanded within the alpine valleys and spread throughout continental Europe, thanks to religious institutions.

At the end of the fourteenth century, Europe had to face the first negative effects of a climatic phase called the 'Little Ice Age', which, with the big 1709 frost, destroyed most of the continental agriculture. This period officially ended in 1850, with the '*Irish potato famine*'.

Towards the end of the feudal system, the location of European vineyards underwent a drastic change: vines disappeared from England and from the internal alpine valleys. Poor climate conditions led to a lack of grain, and consequent famine. Black Death spread and wines were of such poor quality that they were unable to last until spring without becoming too acid. The nobles and higher clergy were not prepared to tolerate drinking low-quality wines, and they started to look again at eastern Mediterranean production. Thanks to the mercantile activity of the Republic of Venice, wines like Greek Malmsey, Vinsanto and Muscats spread throughout Italy and northern Europe. The huge commercial success of such wines encouraged the production of similar wines in many Italian locations and along the oriental Adriatic coast. This was helped by the Turkish conquest of Crete in 1564, because Venice was deprived of the vineyards yielding most of its Malmsey. However, the merchants in Venice were anxious not to lose such a precious market, so they encouraged the production of sweet and aromatic wines from any suitable grape variety in different locations, and traded

all these wines under the name of Malmsey. This is the first example in Europe of a famous varietal name being used for other varieties that had no genetic relationship. They were distinguished by their location of origin and by the peculiar features of the grape bunch. Their only common point was to yield a sweet, aromatic and alcoholic wine. This is also the first example of a grape variety named after a wine: usually, it happens the other way round. French and Italian agronomists between the sixteenth and eighteenth centuries suggested several techniques to improve late harvest even in unfavourable climatic conditions (such as stacking up whole bunches of grapes for several days to drain the must) or winemaking (like adding concentrated must).

This climatic change did not strike the southern regions of Italy, which became the most advocated areas for the production of sweet wines.

Large quantities of wine produced in the area of Santa Severa left the Tyrrhenian coast from the harbour of Tropea. They were called Greek wines, and reached the markets of northern Europe, competing with the (*sweet and round*) Malmsey from Venice or the so-called *strong* wines from southern France (sweet, aromatic, alcoholic).

Calabria gained a key position in the trade of sweet and often aromatic wines in many northern Italian towns, both for their quality and for their competitive price compared to the wines from Greece (Candia) and Lebanon (Tyre). In fact, the latter were imported by the Venetian merchants and suffered from the so-called ‘revolution of freight charges’, which made it unprofitable to trade low-quality wines. As a consequence, low-quality wines lost their market share and many marginal production areas (in the mountains, far from harbours and cities) that had risen up during favourable climate conditions – when there was a demand for wine as it was perceived as a status symbol – were abandoned.

1.5 THE SWEET WINES OF CLASSICAL GREECE: GRAPE VARIETIES, TECHNIQUE AND PRODUCTION AREAS

In ancient times, people were particularly keen on sweet foods, even though at that time they were not easy to find, which is why sweet wines were considered the highest pleasure. Through the addition of dried grapes or by cooking must, producers could make sweet drinks by adding calcareous powder (obtained by crushing shells), or sea water. This lowered acidity, making the wine sweeter and less aggressive. The wines obtained by late-harvested grapes were called *saprias oinos*, while *melilotes* was a concentrated must with the addition of honey and salt. In spite of being very expensive, honey was the most popular sweetener, but a similar effect was obtained by concentrating must through heat. Adding sea water to honey (making a mixture called *thalassomeli*) was common in the preparation of the most famous sweet wines.

Discorides is the first author to whom we ascribe the distinction between *Pramnios* or *Cretico* wine, obtained by late-harvested grapes, and *Siriaisos* or *Hepsema*, mainly produced in Crete from cooked must.

The first evidence of the production of sweet wines in Greece is found in the poetry of Hesiod, who had worked as a farmer, and addressed himself to the people of his homeland: Boeotia.

In his masterpiece *The Works and Days*, in the section about autumn (609–614), he says, ‘But when Orion and Sirius are come into mid-heaven (towards mid-September), and rosy-fingered Dawn sees Arcturus, then cut off all the grape-clusters, Perses, and bring them

home. Show them to the sun ten days and ten nights: then cover them over for five, and on the sixth day draw off into vessels the gifts of joyful Dionysus’.

Greek and Byzantine literary sources quote many different grape varieties suitable for making sweet wines from raisins. Some of these varieties called *Xenologos* (the etymology of the name recalls the way they were used in viticulture) were used only for drying. In fact, such wines as *Tharrupia*, *Buconiates*, *Capnios* and *Sirpula* refer respectively to *tharrupio*, the fruit-drying rack made of canes; *buconiates*, the pine cone from where the resin for conservation was extracted; *capnios*, the cooking technique that gave the smoky flavour; and *sirpula*, the operation of twisting the bunch on the plant to make it dry better.

Pramnio (*Iliad*, XI, 631; *Odyssey* X, 225): this grape variety was grown in Izmir, Lesbos and Icarus to produce generous sweet wines. The wine was obtained by fermenting a must particularly rich in sugar, as it drained from over-ripe grapes that were stacked up.

Biblino: from Byblos, in Phoenicia. This grape variety was grown in Thrace and Naxos (Sicily). It was the wine for feasts, the most famous among sweet wines (*Idylls* by Theocritus XIV, 4). Hesiod (*Works and Days*, 609–614) forecast its late harvest. It gave a black wine, intense, for long ageing; it is the wine Ulysses offered to Polyphemus. The grape grown in Chios belongs to the same varietal group.

This is how Hesiod describes it (*Works and Days*, 590–596): ‘But at that time let me have a shady rock and wine of Biblis / then also let me drink bright wine, sitting in the shade / from the everflowing spring which pours down unfouled thrice pour an offering of water, but make a fourth libation of wine’.

Phanaios: highly appreciated by Virgil, who called it the king of wines (*Georgics*, II, 98).

Psithia: quoted since the fourth century BC with the name of *anaxandrides* (grapes produced by vines trained on trees). Columella calls it ‘*species uvae graculae*’ and writes about its low productivity and its feature of producing sweet wines after the grapes dry. Virgil highlights its aptitude for the production of sweet good-quality cooked wines and the particular taste of grapes (*Georgics*, II, 93). He calls it *psizio*, and another wine, which was black in colour, he calls *melampsizio*.

Leucothrakia: a sweet white from Thrace, made from dry grapes and bound to the fame of Santorini.

Methymnacea: from Lesbos. Virgil calls its wine *rex vinorum*.

Sticula: appreciated by Pliny (XIV, 9, 11) as a long-lasting grape, but also *dulci vino apta*.

Samia: from the island of Samos, quoted by many Greek and Byzantine authors, it produced the sweet wine *anthosmias* through a peculiar technique: the juice, drained from over-ripe grapes, was mixed with must obtained partially by pressing and partially by boiling. Ash and lime were added too.

Mandes: from the Falcidia region, it produced a wine from over-ripe grapes called ‘god’s pee’.

Winds played an important role in the choice of the most suitable locations for the production of sweet wines from over-ripe grapes. Athenaeus (I, 26c) stated that sweet high-quality Falernian wine was obtained when, during the final phase of maturation, a southern wind blew (called ‘autumn wind’ in the Vallese). Martial (III, 58, 6f) quotes several locations uphill where very dry weather conditions allowed harvesting in November, during the first snows. These grapes were called *seras uvas*. Also sweet wines from Macedon were obtained by drying grapes cultivated on the south-facing slopes of the mountains (*sta prossilia*) at altitudes of about 600–700 m above sea level; such grapes were able to dry not because of the heat, but because of the long, dry autumns. Usually, a mix of white and black grapes was used, and the best *listò krasi* (Vinsanto) was called *èliaumènon*.

1.6 THE GREEK SYMPOSIUM AND THE ETRUSCAN CONTINUERS

When one thinks of Classical Greece, images of vascular paintings can quickly come to mind. A deeper analysis of such representations highlights the exclusive function of containing wine that such pottery had, between the sixth and fourth centuries BC (Figure 1.1).

The literary sources and the images on the various pieces of pottery reveal how such consumption was the central element of socialization in the various Hellenic communities. Wine was the gathering point of a specific conviviality, which was different from banquets (*deipnon*), where wine was simply complementary to food.

Such activity was called *symposion*, and it is conceptually close to a private feast, a sort of *drinking-party*. It was also very different from a Roman *convivium*, more similar to a *deipnon*. The Romans called the symposium a *comissatio* or *compotatio*, a word of Greek origin.

The Greek word symposium actually means ‘drinking together’ (*syn-potein*). It was a social event with social drinking at its centre. Everything followed set rules: type, theme and manner of toasts. The main prescriptions though concerned the ritual of mixing wine and water in the *crater*, because every mixture had a different effect on the guests according to the different phases of their inebriation – which all guests had to reach and which was one of the main values of a symposium: the equality of the prefix *syn* which constitutes the word ‘symposium’ (Catoni, 2010).

In his *Convivial Questions*, Plutarch says that *Lathikedès* is the perfect wine–water mixture in the proportions of about 3 : 2.

Athenaeus, in the *Deipnosophists* (XI, 462c–f) (a banquet of philosophers), in the elegy of Xenophon, describes the celebration of a symposium: ‘For now the floor and all men’s



Figure 1.1 An image of a symposium from a Greek Attic red-figure cup attributed to the painter Douris (ca 500 to 460 BC). © The Trustees of the British Museum. All rights reserved. (For a colour version of this figure, please see the colour plate section.)

hands are clean, and all the cups, and since the feasters' brows are wreathed with garlands, while the slaves around bring fragrant perfume in well-suited dishes; and in the middle stands the joyful bowl, and wine's at hand, which never deserts the guests who know its worth, in earthen jars well kept, well flavoured, fragrant with the sweet fresh flowers; and in the midst the frankincense sends forth its holy perfume; and the water's cold, and sweet, and pure'.

The ceremonial of the symposium was strictly connected to the myth of Dionysus: the god who taught men how to grow vines, produce wines and especially in what proportions wine had to be mixed with water. The constant practice of late harvest and of drying grapes in Thrace, homeland of Dionysus, with the consequent high alcohol volume, were the original reasons why it was forbidden to drink pure wine in Greece: it was considered a dangerous drink, similar to a drug. The wine for the symposium was sweet and alcoholic, because only a concentrated wine could be mixed with water. Moreover, it was popular to mix wine with grated cheese, usually goat cheese (this reminds us of the present-day habit of drinking sweet wines with strong cheese), and this could be done only with sweet wines, or wines that were sweetened through the addition of honey, as we can read in *The Iliad* (IX, 638): 'In this (cup) the woman, as fair as a goddess, mixed them a mess with Pramnian wine; she grated goat's milk cheese into it with a bronze grater, threw in a handful of white barley-meal'.

This drink called *kykèon* (from *kikòn*, to mix) is the same as that prepared by the slave Ecamede for Nestor and the injured Machaon, and that Circe offered to the Achaeans before transforming them into pigs (*Odyssey*, XI).

Outside Greece, only the Etruscans and a few communities around the areas of Apulia and Lucania can be considered as continuers of the symposium tradition. This is shown by the many grave relics of the various ages. A few variations were introduced, like the game *kottabos* and the presence of women.

In Taranto, one of the Magna Greece cities where the tradition of the symposium was particularly strong, wine was described as 'light, lacking in violence, fresh, sweet and easy to digest'. Near the agora of Sibari, in Metaponto, a big *kantharos* was found. Around its edge was the following inscription: 'to dispense nectar for the mortals to drink'. This is evidence of the diffusion of the symposium in Magna Greece during an early phase of colonialism. The preparation techniques of sweet wines were also adopted in the colonies; the most ancient trace in Italic is a wall painting on a *guttus* from the second half of the fifth century BC from Sicily; it is interpreted as *vinum defructum*, cooked wine.

The wine that was mainly used in these Magna Greece cities came from Lagaria, an Ionic town founded by Epeo, the legendary builder of the Trojan horse. Strabo, in the second half of the first century BC, calls such wine sweet (*glykùs*) and smooth (*apalòs*).

Another important occasion for drinking sweet wines in Classical Greece was when people went to sanctuaries to consult the oracles. Along the route there were many places where pilgrims could stop and rest. Such hostels usually offered sweet wines (*glukus*). The verb *glukizen* means 'to offer sweet wines' and *glukimos* 'place where sweet wine and food are served'. The words *glukus* and *glukimos* often appear in inscriptions about banquets, meaning a moment just before dinner when an aperitif was served.

1.7 PRODUCTION AND CONSUMPTION OF SWEET WINES IN ANCIENT ROME

In ancient Rome wine was a way to communicate; it was synonymous with feasting, conviviality and pleasure, during great banquets as well as at the tables of the poor. Wine was always served; this is evidenced by literary citations, still-life wall paintings, sculptures, Bacchic

low reliefs, and gravestones representing tools for cultivation, for building barrels, and trade scenes. For the Romans, good wine was a synonym of old wine. Sweet wines kept better than dry ones, even though interrupting fermentation was really hard at that time.

The Latin *Georgics* often quote wine but without describing its organoleptic features. They are precise about the places of origin (Falerno, Retico, Massico, etc.) and about the grape varieties (*aminee*, *elvole*, *rodie*, *dattili*, *eugenie*, *graecula*, etc). Pliny praises the wine from Lebanon, which 'had the perfume of incense': it was a sweet wine produced with raisins and slowly cooked must.

Martial, who is ruthlessly ironical about Rome in the first century, does not forget to mention wine.

There are 90 *topoi* where wine is precisely described, amongst which we have the wines sweetened with honey that were harvested in Crasso, and those with the addition of resin from Vienne.

But which wines did the Romans actually drink? Wines for the upper classes were generally aged (*vinum vetus*, *sequentis gustus*), while among those drunk by the farmers were *posca*, a mixture of water and vinegar, and *lora*, a very light wine obtained by rinsing pomace with water after all the must had been pressed out (this was still done in Italian rural areas until about the second world war). The latter was the drink for the slaves.

Another rather poor wine product was *vappa*, obtained by refermenting a wine with residual sugar during the summer.

Columella stated (XII, 6, 9, 2) that the best wines were those which kept without any special treatment, while the lowest quality wines were those harvested either from vines that were far too young, or from unfavourable *terroir*; these needed the addition of concentrated must or resin.

Columella, just like Hesiod, provides us with precise instructions about how to make *passum* (from sun-dried grapes) and the so-called second *passum*; these are the most detailed enological indications from the period.

The technique described by Pliny (*Naturalis Historia*, 8, 23) is particularly interesting, since it differs from those of both Hesiod and Columella. For some famous wines, such as those from Cos, Lesbos and Clazomene, he introduces, before fermentation, maceration of the sun-dried grapes in a mixture of sea water and cooked must which had to boil for one night and one day. This prevented the action of acetic bacteria and slowed down yeasts, in order to obtain a wine higher in sugar.

The best mix though was of old Falernian wine, which had a bitter character, with Greek honey (*vinum melle conditio*).

The diffusion of must enrichment techniques (by adding honey or by heating the must itself) was also the result of Roman military expansion throughout Europe, which carried the wine culture with it.

The use of *defructum* and *sapa* (boiled concentrated must) and of *mulsum* (sweetening through addition of honey) helped to improve low-quality wines for export.

Cooked must or wine had two names, depending on the degree of concentration: *defructum* (from *defeuere*, which means to chill after boiling; although this is misleading because it could also mean that heat was the result of the fermenting process or of fire heating), and *sapa*, which had a much higher concentration, from two-thirds to one-third of the initial volume. During the heating process, especially if the containers were made of copper, wine often acquired a bitter, unpleasant taste; therefore certain aromatic substances were added, such as iris or Greek hay. Pliny preferred a lead container, Columella agreed, but it had to be treated with oil. Cato shows no preferences. Two days after fermentation started, *defructum*