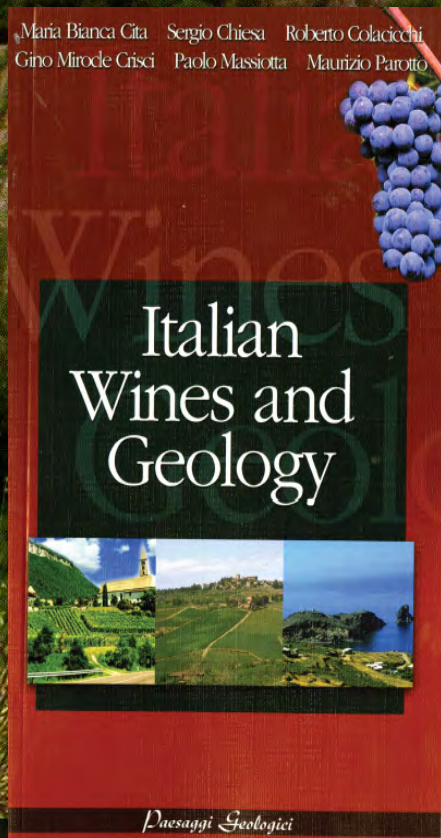
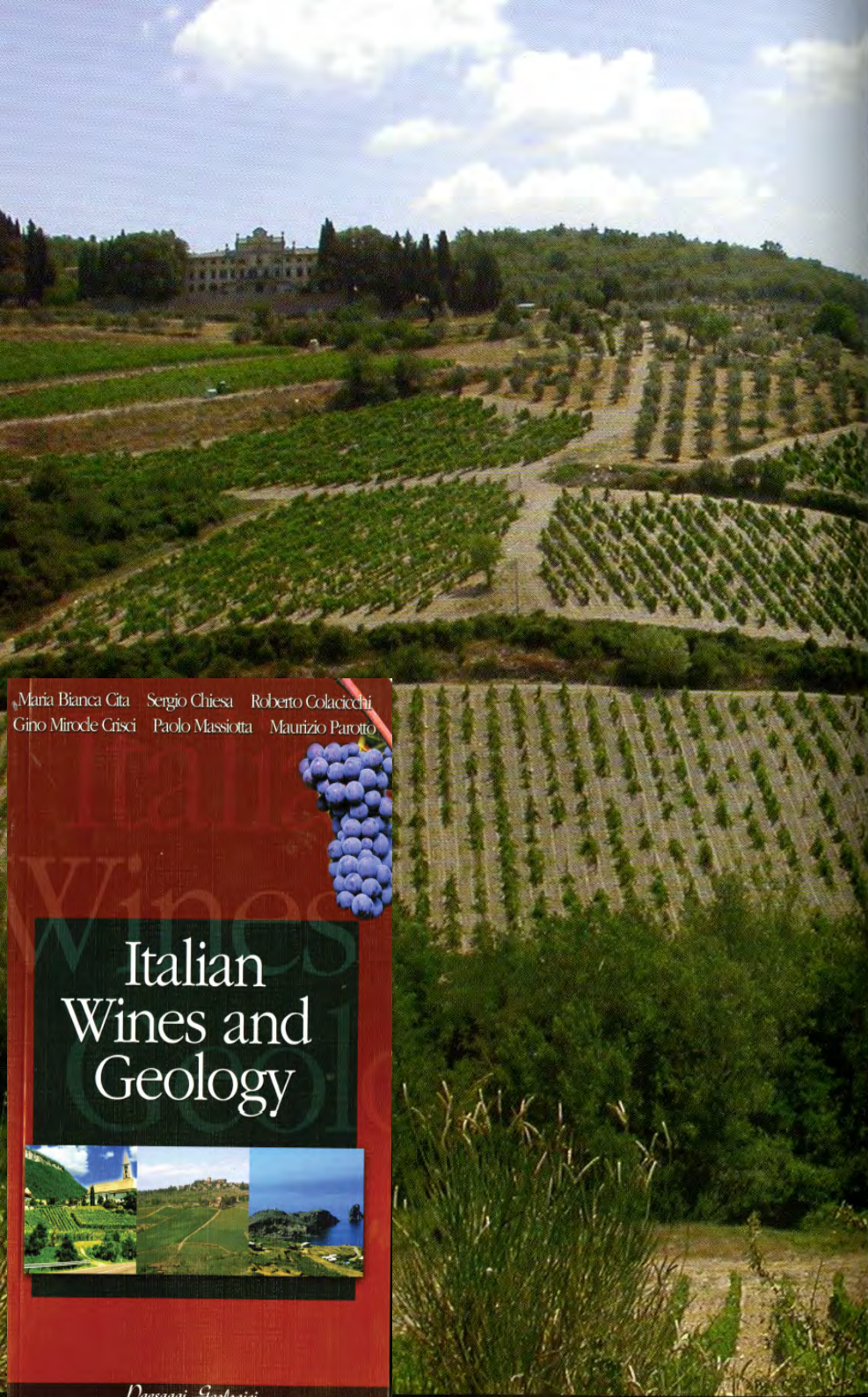




Background and motivation

In the last few years Italy has been one of the biggest producers of wine, competing with France not only in terms of quantity (more than 60 million hl) but also in terms of the commercial value of wines.

Wine has long been the traditional beverage of Italians, and was normally served at each family meal (i.e. at lunch and dinner). However, the Italian way of life is changing rapidly and nowadays families seldom sit around a table twice a day: the younger generations are used to eating fast food with soft drinks or beer. As a result, the national consumption of wine is decreasing, but the slogan is "we drink less, but we drink better".

Indeed, until a few decades ago, prior to the wine appellation syndrome, most Italian wines were unremarkable, with a few noteworthy exceptions. The classical Nebbiolo reds of Piedmont (Barolo, Barbaresco, Gattinara, Carema) and Lombardy (Valtellina), the Sangiovese reds of Tuscany (Chianti, Brunello), and the whites of Veneto (Soave, Tocai, Verduzzo, Prosecco) and Piedmont (Gavi, Moscato d'Asti) have long been appreciated and exported, but most Italian wines, especially those from the south, were produced and sold in big tanks with no trademark with the exception of Marsala. Red wine was used to boost wines low in sugar from northern latitudes; white wine served as a base for the production of vermouth.

Today a real revolution is underway, as witnessed by the incredible variety of certified bottled wines on the market. Slow food clubs and the like contribute to the present request for genuine typical products, the research for niches, and for the concept of "filiera" as a continuous chain from the vineyard to the cellars and finally the market.

This request also involves cultural

aspects, curiosities and historical roots not only related to wines, but also to the growing of grapes.

Italy has a long geological history that includes the entire Phanerozoic and portions of the Precambrian metamorphosed in orogenic belts. The classical Mesozoic successions of the Southern Alps and central Apennines, the carbonate platforms of Adria (see later), and the widespread terrigenous or pelagic sediments of the Cenozoic are world-famous. Grapevines thrive in a variety of environments, with substrates that range from granites to limestones, from gravels to schists, and from volcanic and/or volcanoclastic rocks to marls and clays.

This book aims to familiarise geologists with the incredible variety of Italian wines, noble wines and typical wines, while trying to highlight the complex relationships between rocks, soils, geomorphology, climate, exposure and grapevines.

The book also tries to familiarise wine lovers with the concept of *terroir*, allowing them to appreciate the relationship between a product and its origin and to read the landscape with the eyes of a geologist (i.e. in 3D plus time), trying to unravel its past history.

We have enjoyed working on this book for our foreign visitors attending the Florence 2004 32nd International Geological Congress, and hope they appreciate our efforts. However, a word of warning: do not expect to find the results of a real scientific study or a true oenogastronomic guide!!

Three millennia of grape growing and wine making in Italy

Vitis vinifera, the domestic grapevine which originated in the eastern Mediterranean, derives from the wild

Vitis silvestris, whose oldest ancestors are found in Central Asia, as shown in figure 2. This derivation is commonly accepted, even though seeds (*vinaccioli*) are found in Italy in Miocene sediments. The history of wine-making goes back to the earliest civilisations and is largely documented in Greek culture, in Egyptian frescoes, and even in Hittite sculpture, as shown in figure 1. Noah, the biblical hero who saved humanity from the Flood, notoriously used wine, some 7500 years before Christ according to Ryan and Pitman's (1999) chronology.

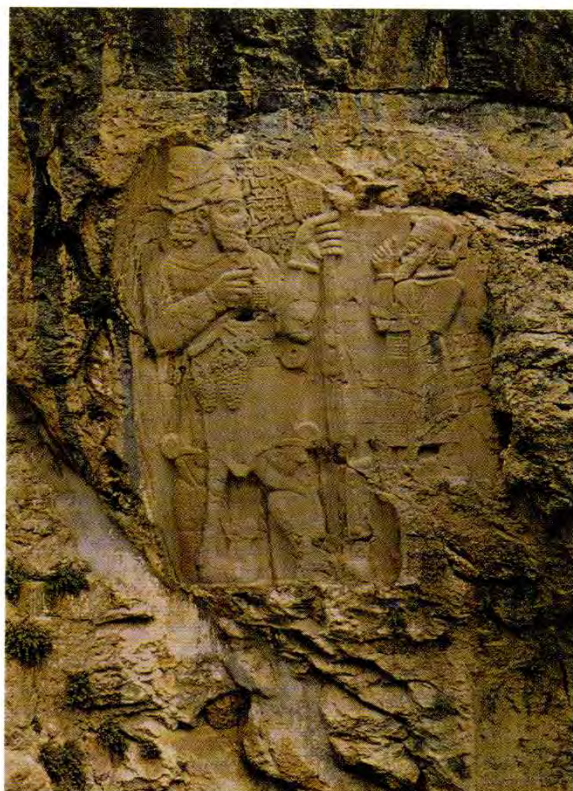


Fig. 1. Bas-relief on a rocky cliff of southern Turkey showing the god of vegetation with grapes (after Hirmez, 1961).

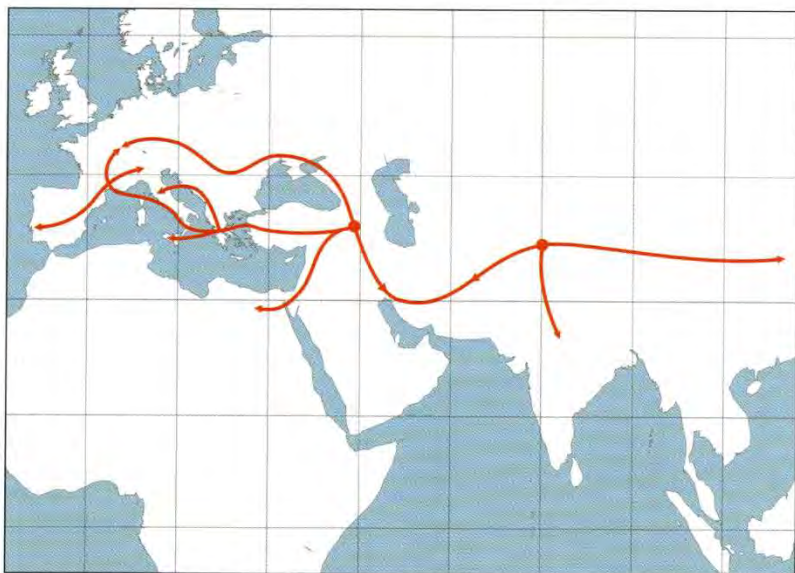


Fig. 2. Supposed dispersal pattern of *Vitis vinifera*, derived from *Vitis silvestris* native of central Asia

mination of *Vitis vinifera* on both sides of the Mediterranean was fairly rapid. It was brought to Italy by the Greeks, through the colonies of Magna Graecia (in Puglia, Calabria, Sicily), and by the Phoenicians (in Sardinia and westernmost Sicily). Prior to Roman times, the southern portion of the Italian peninsula was named Enotria, after the inhabiting Enotri population; this name derives from *Oinos* (i.e. wine) or *Oinotros*, which means "pole that keeps the climber upright".

Vestiges of the millennial use of wine are common in Italy (see fig. 3-4). One of the oldest wines is Cirò from the Ionian shore of Calabria (Crotone Province), home town of the Greek mathematician Pythagoras; this famous wine was offered to the athletes returning home from the Olympic games in Grece...

The Romans, like the Etruscans, were great drinkers; with their successful wars followed by solid administration, they spread cultural practices - including gra-



Fig. 3. Italic crater from the prehistoric museum of Lipari showing Ulysses receiving a goat-skin full of wine (after Breda, 1958)



Fig. 4. Blue jar from Pompei, with grapes and vine leaves, a masterpiece of glass art from the antiquity (after B. Maiuri, 1957)

pe growing - to western and central Europe. The climate was milder than today, and grape growing was successful as far north as Normandy, Wales, Cornwall and Germany. The Greek god Dionysus and the Roman Bacchus were very popular, along with their followers and revels.

Several arts witness the importance of wine in antiquity, from pottery to glassblowing, from frescoes to poetry. We must mention the Greek *aedo* Hesiod and his poem "Works and Days", where he specifically describes the daily chores in the various seasons to successfully grow grapevines, and the Roman poets Virgil (from Mantua, in northern Italy) and Horace (from Venosa, in southern Italy), who both lived in the first century AD, at the time of the Augustan Empire. In the first chapter of *Georgics*, Virgil reveals a profound knowledge of grapevines, and of their relationship with the environment, and requirements in terms of human labor, etc.



Fig. 5. Typical "alberata" of Asprinio near Aversa (Campania) with several metres high vines climbing on live support (poplar trees)

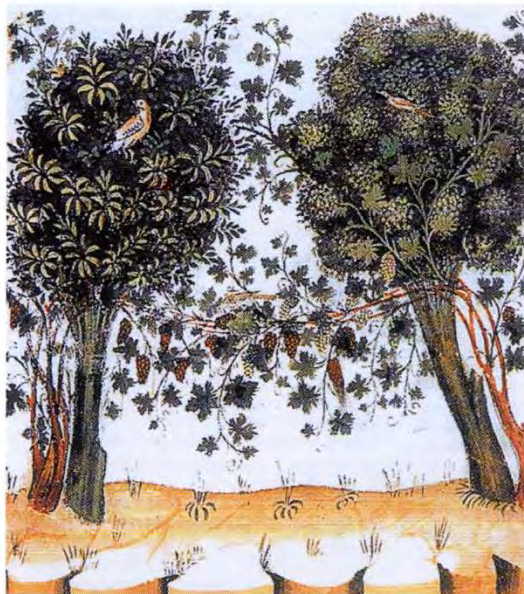


Fig. 6. Alberata as represented in a miniature of the XIV century



Fig. 7. Gobelet trained vines of Malvasia grow on the slopes of Mt. Guardia, a rhyolitic dome in the Lipari island

Horace is known for his hedonistic approach to wine culture "*nunc est bibendum, nunc pede libero pulsanda tellus*". . . ("Now is a time to drink, to stomp the ground with free feet")

We would like to point out two things;
1 - *Vitis vinifera* is a climber requiring a solid support to grow and develop its annual vegetation, which in some varieties is extremely abundant and must be controlled by repeated green pruning. The support may be living (tall trees such as elm, poplar, mulberry) or dead (wood, rock, or stone pillars). The problems and dangers encountered in growing tall vines are carefully described in the scripts by Virgil (Georgics), but this cultural practice is still followed in some parts of southern Italy, especially in Campania (fig. 5-6). Even in antiquity, where the climate was hot, dry and windy as in the small islands around Sicily, or in the Apulian Peninsula, the vines were kept short and with reduced vegetation to reduce evapotranspiration (fig. 7).

More about the different styles of plantations in parts 2-4 of this book.

2 - Wine making procedures have not changed significantly through the centuries, with hand picking of grapes, treading of fruit, and fermentation in large



Fig. 8. Wine amphora recovered in the forum warehouse at Pompei (after A. Maiuri, 1961)

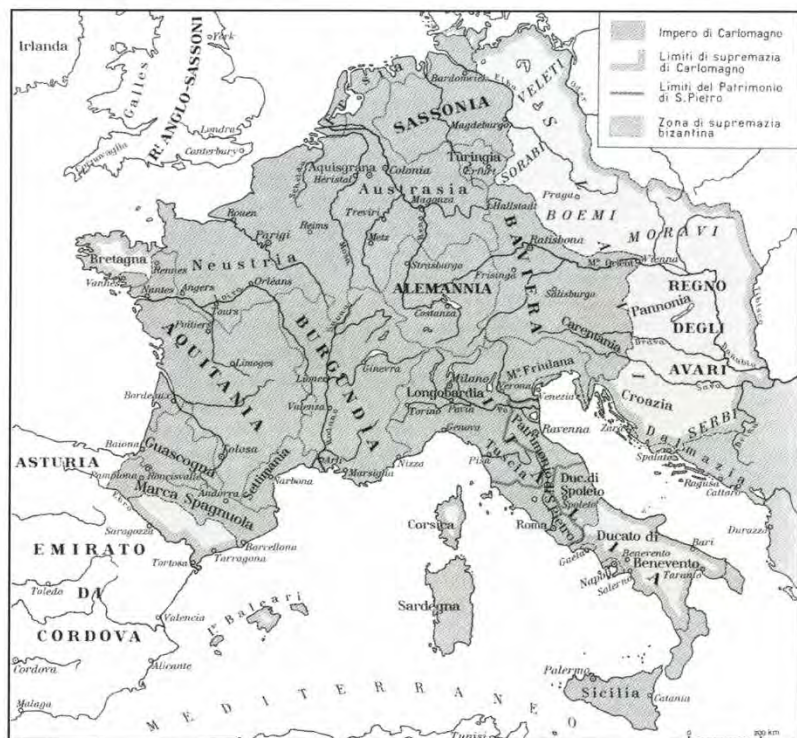


Fig. 9. Extension of the empire of Charlemagne (after T.C.I., 1961)

basins in the ground. The wine was preserved in large terracotta containers, which broke easily and was transported over land or sea in wine amphora (see fig. 8), as largely documented in archaeological excavations. Preservation of wine in wooden barrels was invented by the French, centuries after the dissolution of the Roman Empire (in 476 AD); the preservation and transport of wine from the production area to the tables of rich patricians was therefore an expensive, risky enterprise. It is reported that the Celts used wooden barrels for beer, and this method of preservation was later adopted for wine.

Grape growing and wine making persisted through the centuries notwithstanding the devastating effects of the barbarian invasions from the north (Huns, Ostrogoths) and south (Vandals, Saracens),

especially after the dissolution of the Roman Empire. The Holy Roman Empire was created under Charlemagne; based on the feudal system, the empire was long-lived (fig. 9). Agriculture suffered greatly and the lifestyle of the rural population declined. Grape growing survived even in the poorest, more secluded regions thanks to the Roman Catholic religion, and to the monasteries in particular.

Wine is required to celebrate the Roman mass. Monks, especially those from the oldest monastic order of Benedictines founded in AD 529 by St. Benedict of Norcia, with the motto "Ora et Labora" ("Pray and Work"), were not only obliged to grow grapes around the monastery but also to reproduce the vines, since the lifetime of *Vitis vinifera* is fairly short (20-30 years on average).

Fig.10 shows the most famous Italian abbey, the Abbazia di Montecassino,



Fig. 10. The Montecassino Abbey seen from the historic vineyard that belongs to the abbot

destroyed by the US Army in 1944 and entirely reconstructed, in the background of the historic vineyard that belongs to the abbot.

Wine has always been consumed at court, in castles and churches from the Middle Ages to the Renaissance to modern times.

Differences deriving from foreign dominations of the north (by France, Spain, Austria) and south (initially by Northern Europe and then by Spain) of Italy will be pointed out later on, along with those linked to the strong independence of central Italy.

After the unification of Italy in 1860 all Italian vineyards were affected by the plague of *Phylloxera vastatrix*. The insect imported from North America through France damaged all the plantations, both old and new, with just a few exceptions (see later).

The surface area of vineyards was subsequently strongly reduced (at present, i.e. spring 2003, it covers 721,500 hectares), and in order to overcome the recurrent disease, the local (or imported) varieties

were grafted onto an appropriate American rootstock.

A new era of grape-growing commenced, an activity which is rapidly evolving in response to changing agricultural techniques, progress in wine making, the availability of new biologically controlled varieties of grapes, and - last but not least - to the increased demand for high or top quality wines.

Administrative subdivision of Italy and wine appellations

Italy, with a surface area of 301,323 square kilometres and a population of 57,844,000 inhabitants (2001 census), is divided into 20 regions (see fig.11). The majority have ordinary statutes, but 5 obtained special statutes after World War II for different motives (big islands, bilingual populations bordering France, Austria or Slovenia) and at different times, as follows: Sicily was the first (1946), followed by Sardinia and Valle d'Aosta (1948), Trentino-Alto Adige

(1949) and Friuli-Venezia Giulia (1963). Valle d'Aosta and Trentino-Alto Adige have very small populations (36 and 67 inhabitants per square kilometre respectively), and their territory is classified as 100% mountainous. Nevertheless, grape growing is intensively practised and successful.

Other predominantly mountainous regions are Liguria and Abruzzo (both 65.1%) and Molise (55.3%).

Italian wines derive their names from a geographic location (see table 1) or from a grape variety (table 2).

Montepulciano is mentioned in both tables 1 and 2. In the former it appears as "Vino Nobile di Montepulciano", an excellent robust red wine made essen-

tially with Sangiovese grapes, similar to Chianti and produced in the Province of Siena. Montepulciano d'Abruzzo (table 2), instead, is a renowned red wine from Abruzzo made with "Montepulciano" grapes probably deriving from Tuscany, but with unclear genetic relationships.

In a few cases, the name derives from some peculiarity (e.g. Recioto, Sfuzat, Picolit, Primitivo, Amarone, Sciacchetrà, Cacc'e'mmitte).

Recioto (from Verona) refers to the ears ("Recie" in Venetian dialect) of the grape bunch, where the best, ripest grapes are found.

Sfuzat (from Lombardy) means "forced"; it is the strongest red wine from Valtellina.



Fig. 11. Administrative subdivision of Italy in 20 regions

Table 1

• Italian wines whose name derives from a locality

* see specific descriptions

Wine name	Typology	Region
ALCAMO *	white	Sicily
ARBOREA	red, white	Sardinia
ARVIER	red	Val d'Aosta
BARBARESCO	red	Piedmont
BARDOLINO	red	Veneto
BAROLO *	red	Piedmont
BIANCO DI PITIGLIANO *	white	Tuscany
BIFERNO *	red	Molise
BLANC DE MORGEX *	white	Val d'Aosta
BOLGHERI *	red	Tuscany
CAPRI	white	Campania
CAREMA *	red	Piedmont
CARTIZZE *	white	Veneto
CASTEL DEL MONTE *	red, white	Puglia
CHIANTI *	red	Tuscany
CINQUETERRE *	white	Liguria
CIRO *	red	Calabria
CONTESSA ENTELLINA	white	Sicily
DOLCEACQUA	red	Liguria
ETNA *	red	Sicily
FALERNO DEL MASSICO *	red	Campania
FRASCATI *	white	Lazio
GATTINARA	red	Piedmont
GIOIA DEL COLLE	red	Puglia
GUARDIA SANFRA MONDI	white, red	Campania
LEVERANO	white, red	Puglia
LOCOROTONDO *	white	Puglia
LUGANA	white	Lombardy, Veneto
MANDURIA *	red	Puglia
MARINO *	white	Lazio
MARSALA *	passito	Sicily
MARTINA FRANCA	white	Puglia
MONTALCINO *	red	Tuscany
MONTEFALCO *	red	Umbria
MONTEPULCIANO (Vino nobile) *	red	Tuscany
ORVIETO *	white	Umbria
PANTELLERIA *	white	Sicily
PICENO	red	Marche
POLLINO *	red	Calabria
POMINO *	red	Tuscany
SAN SEVERO *	white	Puglia
SANTA MADDALENA *	red	Alto Adige
SAN VITO DI LUZZI *	red	Calabria
SASSELLA *	red	Lombardy
SOAVE *	white	Veneto
SOLOPACA *	white, red	Campania
TAURASI *	red	Campania
TORGIANO *	red	Tuscany
VALPOLICELLA *	red	Veneto
VESUVIO	white, red	Campania

Table 2

• Italian wines whose name derives from the grapevine * see specific descriptions		
Wine name	Typology	Region
AGLIANICO *	red	Basilicata, Campania
ALBANA *	white	Emilia
ALEATICO *	red	Various regions
ANSONICA	white	Sicily
ASPRINIO	white	Campania
BARBERA *	red	Various regions
BIANCHELLO	white	Marche
BIANCOLELLA	white	Campania
BOMBINO	white	Puglia
BONARDA *	red	Lombardy
BRACHETTO	red	Piedmont
CANNONAU *	red	Sardinia
CESANESE *	red	Lazio
CODA DI VOLPE	white	Campania
CORTESE	white	Piedmont
DOLCETTO	red	Piedmont
FALANGHINA	white	Campania
FIANO *	white	Campania
FUMIN	red	Val d'Aosta
GEWÜRZTRAMINER *	white	Alto Adige
GIRO'	red	Sardinia
GRECANICO	white	Sicily
GRECHETTO	white	Umbria
LACRIMA DI MORRO	red	Marche
LAMBRUSCO *	red	Emilia
MALVASIA *	red	Various regions
MARZEMINO	red	Trentino
MONICA	red	Sardinia
MONTEPULCIANO *	red	Abruzzo
MOSCATO *	white	Various regions
NASCO	white	Sardinia
NEBBIOLO	red	Piedmont, Lombardy
NEGROAMARO	red	Puglia
NERELLO	red	Calabria, Sicily
NURAGUS *	red	Sardinia
PICOLIT *	white	Friuli
PIEDIROSSO	red	Campania
PIGATO *	white	Liguria
PRIMITIVO *	red	Puglia
PROSECCO *	white	Veneto
REFOSCO	red	Friuli
SAGRANTINO *	red	Umbria
SANGIOVESE *	red	Emilia, Tuscany
TEROLDEGO *	red	Trentino
TERRANO *	red	Friuli
TREBBIANO	white	Emilia, Lazio, Abruzzo
VERDICCHIO *	white	Marche
VERDUZZO	white	Veneto
VERMENTINO *	white	Sardinia, Liguria
VERNACCIA	white	Sardinia
ZIBIBBO	white	Sicily

Picolit (from Friuli) derives its name from the small size of the grapes.

Primitivo (from Puglia) means primitive, and refers to the early ripened grapes

Amarone (from Verona) means big bitter.

Sciacchetra (from Liguria) refers to the noise made when popping the cork.

Cacc'e' mmitte (from Lucera, Apulia) refers to the short, rapid fermentation of the grape Uva di Troia mixed with Sangiovese and Black Malvasia.

The first Denominazione di origine controllata (DOC) wines were formally established in the early sixties (D.P.R. 930,

1963), and several categories of wine appellations now exist in Italy.

In order to obtain a certified appellation, detailed documentation on soil composition, grape varieties and their percentages, cultural procedures, limitations on quantities produced per hectare (ha=10,000 square meters), etc. is required. A higher category was subsequently created, called DOCG, and law n. 164 (1992) established the status of IGT.

The categories are as follows, from highest to lowest:

DOCG (denominazione di origine con-

Table 3

• A selection of very good and Typical Italian wines * see specific descriptions		
Wine name	Typology	Region
AGLIANICO DEL VULTURE *	red	Basilicata
AMARONE DELLA VALPOLICELLA *	red passito	Veneto
BARBARESCO	red	Piedmont
BAROLO *	red	Piedmont
BOLGHERI SASSICAIA *	red	Tuscany
BRUNELLO DI MONTALCINO *	red	Tuscany
CANNONAU *	red	Sardinia
CASTEL DEL MONTE *	red	Puglia
CESANESE *	red	Lazio
CHIANTI *	red	Tuscany
CINQUETERRE SCIACCHETRA *	passito	Liguria
CIRÒ *	red	Calabria
FALERNO DEL MASSICO *	red	Campania
FRANCIACORTA SPUMANTE *	white	Lombardy
GRECO DI TUFO	white	Campania
LUGANA	white	Lombardy and Veneto
MOSCATO DI PANTELLERIA *	passito	Sicily
NEGROAMARO	red	Puglia
NERO D'AVOLA	red	Sicily
ORVIETO *	white	Umbria
PICOLIT *	white passito	Friuli
PRIMITIVO DI MANDURIA *	red	Puglia
PROSECCO DI CARTIZZE *	white	Friuli
ROSSO CONERO *	red	Marche
SAGRANTINO DI MONTEFALCO *	red	Umbria
SFURSAT *	red	Lombardy
SOLAIA *	red	Tuscany
TAURASI *	red	Campania
TEROLDEGO *	red	Trentino
TIGNANELLO *	red	Tuscany
TORGIANO *	red	Umbria
VERDICCHIO *	white	Marche
VERMENTINO DI GALLURA *	white	Sardinia
VINO NOBILE DI MONTEPULCIANO *	red	Tuscany

trollata e garantita - controlled and guaranteed appellation)

DOC (denominazione di origine controllata - as above, but not guaranteed)

IGT (indicazione geografica tipica = typical to the geographic area)

VT = vini da tavola (table wine).

Meanwhile, the European Community established different categories for high quality wines called VQPRD or VSQPRD:

Vino (wine)

Qualità (quality)

Pregiata (prestigious)

Regione (region)

Determinata (determined)

S stands for spumante (sparkling). This recognition may be found along with DOC, but not all DOCs are VQPRD.

The real connoisseurs, however, discard the Italian classification and have their own rules and categories, such as the three stars of Veronelli (1983), or the four stars of Hugh Johnson (where two stands for "above average", three for "well known, highly reputed", and four for "grand, prestigious, expensive") or the three glasses of Slow Food/Gambero Rosso, or the five grapes of Sommelier.

In other words, the official appellation does not really guarantee a top quality wine; it may be confusing in some instances (see later) and is somehow independent of the commercial value of a wine. We happened to buy a wonderful DOCG Albana di Romagna from a small drugstore in a lonely valley for just a few

dollars, whereas some highly praised, world-renowned table wines or IGT may cost a fortune. For instance, the highly appreciated prize-winners, the new so-called "super-Tuscans" such as Tignanello, Solaia, Ghiaie della Furba are "only" IGT, but they may cost several hundred dollars. The old, world-famous Corvo Salaparuta from Sicily is not a DOC, like many of the excellent west Sardinian wines produced by the historical house Sella and Mosca.

The highest price we could find in a wine bar (not in a restaurant) ranges from 200 to 400 €, the most expensive wines being Amarone, Barbaresco, Sassicaia and Brunello di Montalcino.

The extreme competition among classified wines is exemplified and documented by the steadily increasing number of DOCs, from the initial dozen of 1963 to the present 330 (28 DOCG and 302 DOC).

The confusion (see above) derives from the geographic nature of wine appellations, which do not take into account the local names of the most typical wines. For example, there are nine DOCs in the Friuli-Venezia Giulia region, a big producer with growing importance in the international market and a very high ratio of DOC/total production (66% in 2000):

DOC Carso (67 ha)

DOC Colli orientali del Friuli (2,284 ha)

DOC Collio Goriziano (1,593 ha)

DOC Friuli Annia (64 ha)

Fig. 12. Vineyards of Gewürztraminer at Tramin, in the heart of the Alps

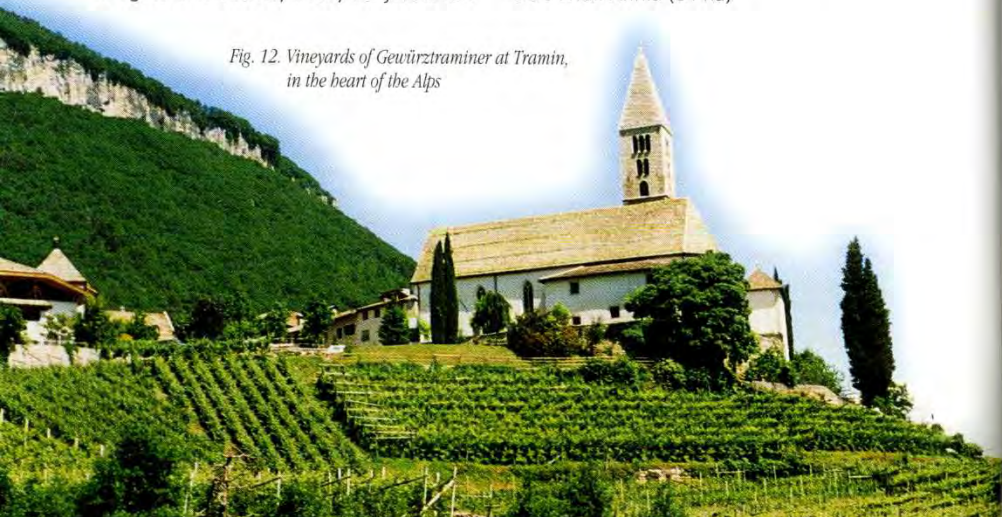


Fig. 13. Intensive viticulture near San Severo (Puglia). The calcareous reliefs of Gargano are visible in the background

DOC Friuli Aquileia (948 ha)

DOC Friuli Grave (6,694 ha)

DOC Friuli Isonzo (1,349 ha)

DOC Friuli Latisana (372 ha)

DOC Lison Pramaggiore (2,274 ha)

The most typical wines from Friuli are Tocai, Verduzzo, Refosco dal Peduncolo rosso, Terrano, Ribolla, Picolit, Schioppettino. How does one know what the appellation is from the local name? Most are produced in 4 or 5 DOCs, some are produced in all of them...

To end this controversy, we compiled (see table 3) a list of very selected typical Italian wines that we (the authors) consider to be the best.

Climatic constraints and more

As mentioned earlier, *Vitis vinifera* originates from the Mediterranean area, in the Middle East, and requires a temperate climate. The best results are obtained in climates characterised by cold winters and hot summers, with strong seasonal thermal excursions, and preferably in areas where the landscape displays some relief. Since the time of the Roman Empire (see Virgil, Georgics, first volume) grape growers have known that eastward exposures are better than westward ones, and that coarse, loose, light soils



Fig. 14. Emergency irrigation is practised whenever possible in new plantations (Puglia)



Fig. 15. Stone walls built with basalt protect the vines (kept short to reduce evapotranspiration) from wind in Pantelleria

are better than fine-grained, heavy, compact ones. The daily thermal excursion is also significant.

The perfumed, strongly aromatic Gewürztraminer from Alto Adige (fig. 12) loses its peculiar characteristics when the same vine is cultivated in a plain. The white San Severo from Puglia, produced from a blend of Bombino bianco and Trebbiano grapes, is much better when produced from vineyards on the low hills north of Foggia than from those on the flat Tavoliere, where

summertime temperatures remain high even after sunset (fig. 13).

Italy extends from 36° to 47° latitude N, from Lampedusa to Merano and the Isarco valley: successful plantations have existed in both reaches of Italy, and excellent wines are produced both in the small volcanic islands of the Libyan Sea (Sicily Channel) and in the heart of the Alps, on glacial deposits overlying crystalline rocks.

Rainfall is mostly sufficient to support the vineyards, and no regular irrigation is



Fig. 16. Grape of Grenache (left) cultivated near Randazzo (Sicily) in the so-called "vigneto sommerso" (right) where vines over a century old can be found

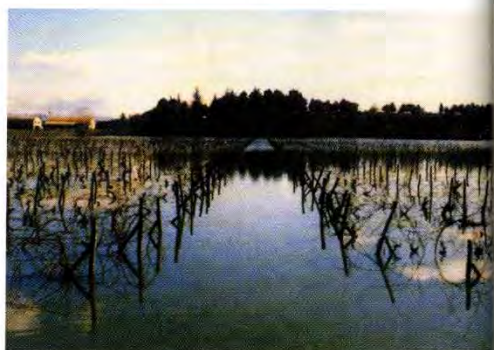
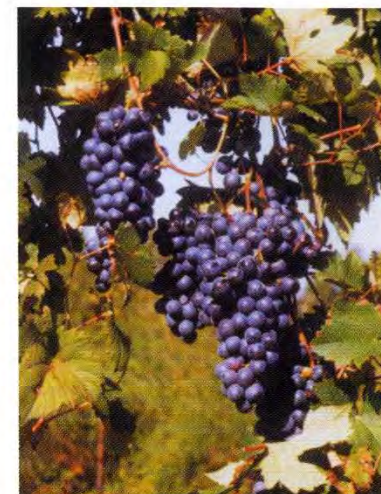


Fig. 17. Logo of "il vino delle sabbie" and grape Fortana, Emilia



required. On occasion, during exceptionally dry seasons or for the establishment of new plantations (first two years, fig. 14), emergency irrigation is practised. In the southernmost islands vines are kept short to reduce evaporative loss and for protection against the persistent wind. Stone walls were constructed for the same reasons by past generations of vinegrowers (fig.15).

The roots of *Vitis vinifera* extend up to 4 meters or more if the soil and subsoil allow their penetration in voids or fissures. They can consequently reach the saturation zone. The grapevine requires good drainage and cannot tolerate marsh soils or persistent moisture. There are a few exceptions, however. One example is from Sicily, where a very peculiar vineyard known as "vigneto sommerso" (submerged vineyard) is situated near Randazzo. A narrow alluvial plain sandwiched between the Etna Volcano (to the south) and the southern slopes of the Nebrodi Mts. (to the north) used to be flooded for several months during the rainy winter season. The cultivated grape variety is Grenache or Alicante, which was imported from Spain during the Spanish domination. The plants are over a century old and survived the plague of *Phylloxera vastatrix*! The wine produced from this

vineyard is named Victory to honour admiral Lord Nelson, who played an essential role in defending the Bourbons and to whom a large estate in the vicinity (Ducea di Bronte) was donated.

Another example is from northern Italy, from the Adriatic coast south of the Po delta. The grapevine grows on a sandy beach, among sand dunes from a salt marsh alternating with small pine forests (fig. 17). The cultivated grape variety is Fortana; some plants are over a century old and survived the *Phylloxera* plague. The DOC Bosco Eliceo, created only a few years ago, is known as "il vino delle sabbie" ("the wine from sands").

The two examples show that in coarse sandy soils grapevines can tolerate even persistent salt water and that in such unusual conditions vine pests are inoffensive.

The grape harvest may begin any time from mid August to the end of October, depending on the grape variety more than on latitude or climate. The white varieties are picked first, but some red grapes such as Primitivo di Manduria are also picked very early.

For the production of *vini passiti* (wines made from semi-dried grapes), such as Amarone, Recioto, Torcolato di Breganze or Moscato di Pantelleria, the ripened



Fig. 18. Geologic sketch of Italy, published by Servizio Geologico d'Italia in 1950

grapes are picked and then dried in the open air or in ventilated rooms for months prior to pressing and vinification.

Geological framework

The boot-shaped Italian Peninsula crosses obliquely the Mediterranean Sea at

its widest expanse. The Apennine Mountains form the backbone of the peninsula, and continue southwards from Sicily into the Maghreb Chain of North Africa. Seismicity is elevated as a result of a convergent plate boundary, which is accompanied by extensive active volcanism.

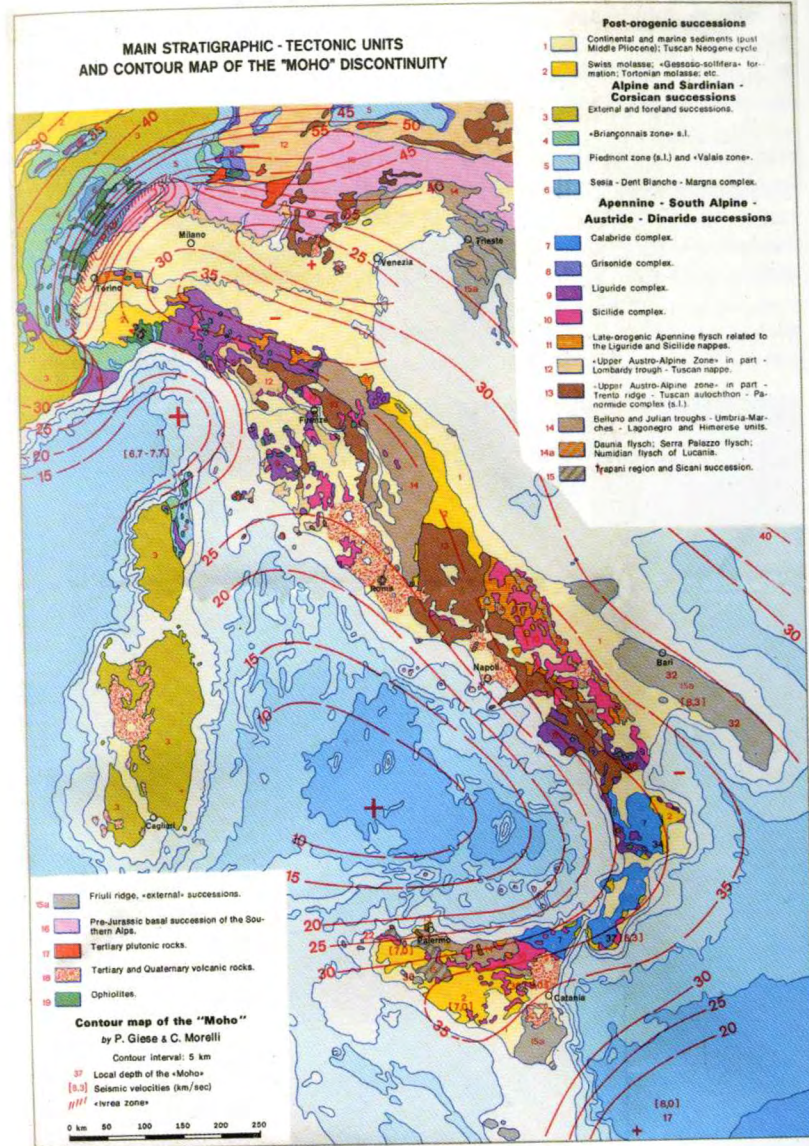


Fig. 19. Structural Model of Italy published by CNR (Consiglio Nazionale delle Ricerche) in 1973

There are no cratonic areas in Italy, and the oldest (non-metamorphic) rocks are exposed in Sardinia, which was connected to western Europe prior to the opening of the Balearic sphenochasm. The Alps in northern Italy are a prototype of a collisional chain, where the passive margin of the African plate collides with

the active margin of the European plate. The western Alps curve southwards, forming a stretched arc originated by the counterclockwise rotation of the Corsica/Sardinia block. The three maps show the progressive understanding of this sector:

1) from the simplistic, descriptive phase

in which only large time units ("Primario", "Secondario", "Terziario" and "Quaternario") were mapped, along with extrusive, intrusive and metamorphic rocks (fig. 18);

2) to the 1:1,000,000 structural model of Italy published by the CNR in 1973 (fig. 19).

3) to the geodynamic sketch of the Italian Peninsula and surrounding areas accompanying the 1:500,000 structural model published by the CNR in 1992 (fig. 20).

The geological framework of various

parts of Italy (i.e. northern Italy, including the regions of Liguria, Piedmont, Valle d'Aosta, Lombardy, Veneto, Trentino-Alto Adige, Friuli-Venezia Giulia, Emilia-Romagna; central Italy, comprising the regions of Tuscany, Marche, Umbria, Lazio, Abruzzo and Molise; southern Italy, comprising the regions of Campania, Puglia, Basilicata, Calabria, Sicily and Sardinia) will be discussed in further detail in the appropriate sections.

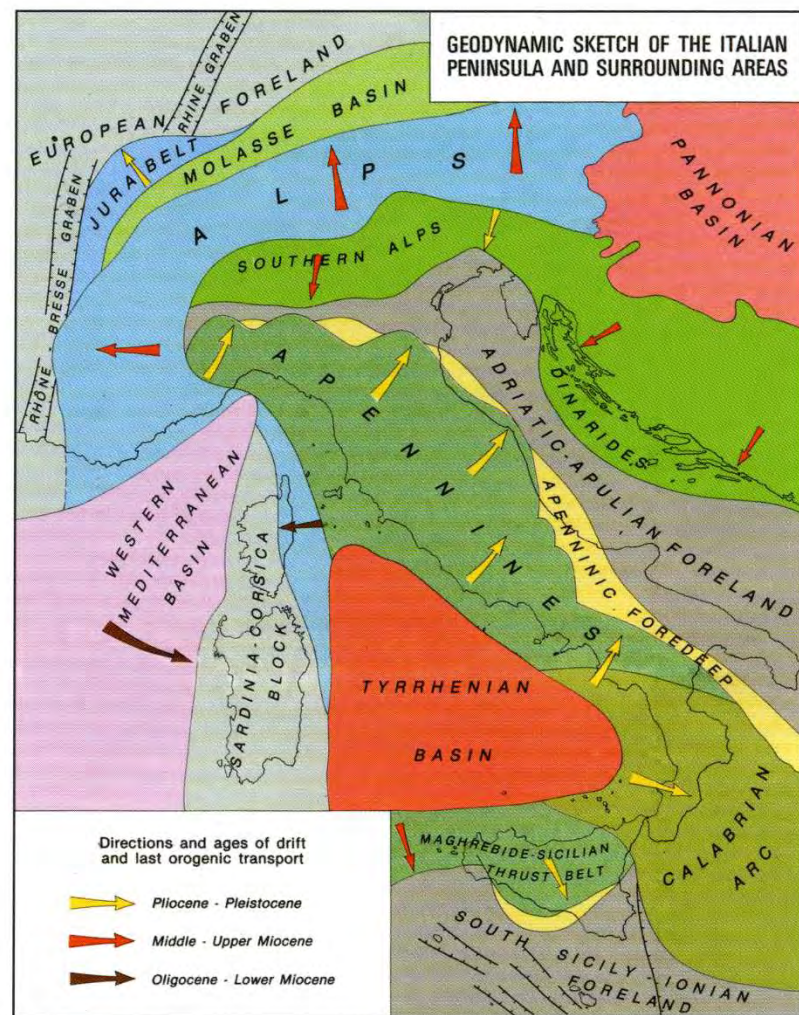


Fig. 20. Geodynamic sketch of the Italian peninsula and surrounding areas published by CNR in 1992

Geological background

The geology of central Italy is dominated by the Apennine thrust belt, which in the northern part of the peninsula extends from the Tyrrhenian Sea to the Adriatic Sea (fig. 74).

Metamorphic rocks of the basement are exposed in the Apuane Alps, which represent the largest tectonic window in the Apennine chain. The entire succession of tectonic units can be observed in this area, from ophiolites and oceanic-type sediments of the Ligurides to sediments of the Adria (Austro-Alpine) continental margin and the underlying Hercynian basement (Tuscan Nappe).

Basement rocks are also exposed between Pisa and Siena and in the Argentario Promontory, where they are overlain by "Verrucano" braided-stream continental deposits. Elba Island shows a spectacular superpositioning of nappes (Ligurides and/or Tuscan units) and an important granitic intrusion of Late Miocene age (grano diorite of Monte Capanne). Giglio and Montecristo are also granitic islands, whereas Capraia is of volcanic origin. The Vulsini, Cimini, Sabatini and Albani mountains are other well-developed volcanic edifices in the Roman Magmatic Province.

The age of intrusive and volcanic complexes is Miocene to Quaternary, and decreases to the east as a result of crustal thinning and extension related to the opening and subsidence of the Tyrrhenian back-arc basin, and to the counter-clockwise rotation of the Italian Peninsula, with the hinge-zone near Genova. Mt. Amiata (1,738 m), of trachandesitic composition, is the highest volcanic edifice in central Italy. All the volcanic complexes of central Italy are located near the Tyrrhenian coast (Tuscany, Lazio) and have a distinct "supra-subduction" character.

The sedimentary history of central Italy in the Mesozoic is a typical "Tethyan" history, and there are classical pelagic Jurassic successions in Umbria and Marche.

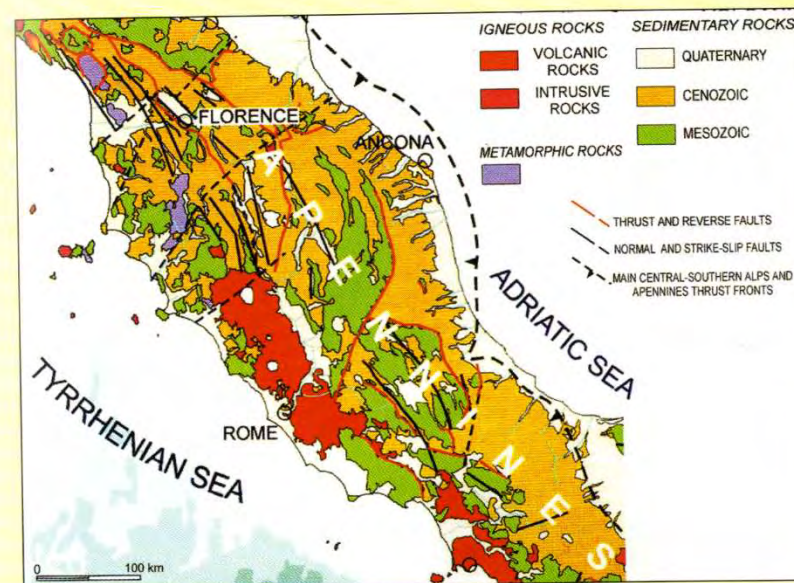


Fig. 74. Geological map of central Italy (after APAT, 2003)

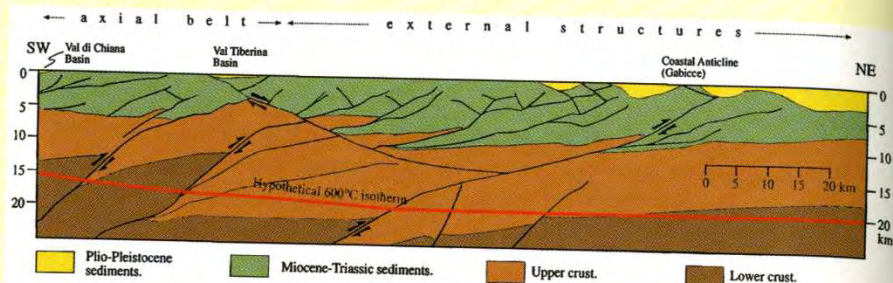


Fig. 75. Geological section of the northern Apennines redrawn from CROP 03 deep seismic profile (Pialli et alii, 1998). Thick lines are faults observed or inferred - The location of the 600 °C isotherm is based upon Cataldi et al, 1995 (after Chiappini and Speranza, 2002)

Carbonate platforms (Lazio and Abruzzo) are bordered by pelagic sediments, and from the Cretaceous on, i.e. after the closure of the Ligurian Tethys, the pelagic successions with low sedimentation rates became terrigenous: the age of the flysch-molasse transition decreases moving eastward.

The highest elevations of the entire Apennine chain are found in its central portion (Gran Sasso, 2,912 m; Maiella, 2,793 m), where there are thick carbonate platforms and related transitional facies.

There are a few flat areas in central Italy; most are tectonic depressions parallel to the axis of the orogenic belt that collapsed in periods of accentuated extension and turned into lakes. The Valdarno, Val di Chiana, Valle Tiberina and the planes of Rieti, Avezzano (Fucino) and Sulmona are the major depressions; some contain important "Villafranchian" fossil faunas. During the last glaciation the entire northern portion of the Adriatic emerged (see fig. 23) due to the substantial lowering of the sea level.

Figures 75 and 76 are schematic cross sections of the northern and central Apennine thrust belt that document the eastward migration of the chain. More information in the figure captions.

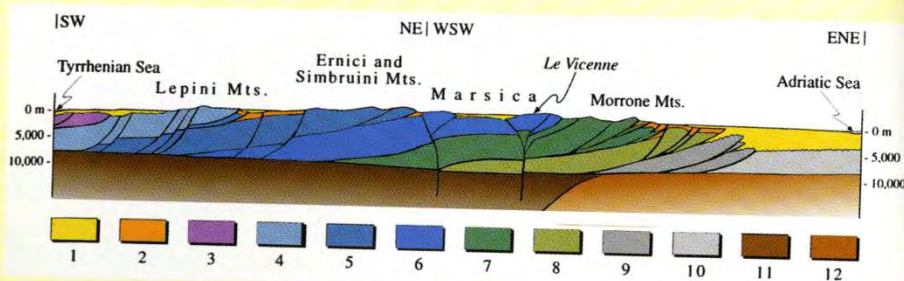


Fig. 76. Schematic cross-section of the central Apennine thrust belt. 1 - marine and continental post-orogenic sedimentary cover of the Tyrrhenian side of the Apennines and of the intermountain basins (Late Messinian-Quaternary); 2 - syn- and post-orogenic deposits of the Adriatic side of the Apennines (Lower Pliocene-Quaternary); 3-9 - tectonic units mainly derived from the external Mesozoic paleogeographic domain (carbonate platforms and basins); 10 - Adriatic foreland; 11 - magnetic basement of the Apennine thrust belt; 12 - magnetic basement of the Adriatic foreland. (From Cipollari et al., 1999)

TUSCANY

Tuscany is one of the most important Italian regions for the production of wine more in terms of quality and fame or reputation than in terms of quantity (2,200,000 hl); indeed it is only fourth after Veneto (8,668,000), Emilia-Romagna (7,116,000) and Piedmont (3,324,000). There is a marked difference between Tuscany and all other Italian regions: here style and wine-making procedures are apparently even more important than elsewhere. A real revolution is underway, with the recent appearance on the wine market of the so called "super-Tuscans", which are currently the most sophisticated and expensive Italian wines (see specific descriptions).

The long side of the triangular-shaped Tuscan region borders the Tyrrhenian Sea. The generally flat coastline shows several gulfs and two main promontories: that of Piombino facing Elba Island and of Argentario facing the Giglio and Giannutri islands. The Magra, Serchio, Arno and Ombrone are the most important rivers flowing into the Tyrrhenian Sea; the first three originate near the Apennine watershed.



Fig. 77. Physiographic map of Tuscany and areal distribution of vineyards



Fig. 78. Etruscan kylix from Vulci, with ship and grapes

The geology of Tuscany is fairly complex (see previous section) and includes allochthonous terrains of various provenance, with lithologies that range from Galestri (turbiditic sediments) to scaly marls and sandstones, which constitute the bedrock of the best DOC regions. The fertile, porous volcanic and volcanoclastic rocks rich in minerals (particularly K minerals) found near the southern border of Tuscany (at the boundary with Umbria and Lazio) are perfectly suited to viticulture.

Grape growing has a very long history in Tuscany, starting from the Etruscans (fig. 78), and is well documented in literature and the arts. The fall of the Roman Empire determined a serious economic and demographic crisis. Central Italy was occupied first by the Longobards (from eastern

Europe) and then by the Carolingians. A date to be remembered is Christmas 800 AD, when Charlemagne was crowned Emperor of the "Holy Roman Empire" by the Pope in Rome. This marked the start of feudalism: a system that was abolished centuries ago but still has a strong influence on the territory. The land was distributed among the nobility and to this day, particularly in Tuscany (but also to a certain extent in Piedmont, Lombardy, Veneto, Campania, Puglia and Sicily), those that were able to keep their properties through the centuries own some of the most prestigious wine estates and display their coat of arms on their bottled wines.

The best wines were served in the castles and summer residences of nobles during feasts, celebrations, important visits and marriages.

Tuscans are generally very independently-minded. The Maritime Republic of Pisa, for exam-



Fig. 79. The castle of Montalcino with typical square merlons (Ghibelline "style")

ple, was in perpetual competition (occasionally at war) with Genova, and led a sort of rebellion against the feudal system that gave rise to the Communes, a concept peculiar to Tuscany that was successful for a fairly limited time prior to the renaissance; this was a period of cruel and bloody battles among Guelphs (supporting the Pope) and Ghibellines (against him see fig. 79), between Pisa and Florence, between Siena and Florence and so on. In the end the Medici gained control of the region, and the Granducato di Toscana (Grand Duchy of Tuscany), with its domineering attitude, lasted up to the unification of Italy in 1860. Florence, before Rome, was the capital of Italy for a few years.

Most areas dedicated to viticulture are concentrated in the central part of the region around Florence and Siena (the Chianti), an area of highly specialised viticulture.

The surface area of the vineyards has decreased in the last years from 82,000 ha in 1990 to 65,000 in 2001 (ISTAT).

The present production exceeds 2,200,000 hl. There are 23 DOCs in Tuscany, including 5 DOCGs: Carmignano, Chianti, Vino Nobile di Montepulciano, Brunello di Montalcino and



Fig. 80. "Il Buongoverno" by Lorenzetti. A detail of the famous fresco, showing well kept vineyards on the slopes of the rolling landscape

Vernaccia di San Gimignano. All the DOCGs are produced in the very heart of Tuscany, in a unique landscape strongly modified by human activity (see fig. 80).

In all, 51.1% of the production is DOC (11.2% of total Italian DOC production). Wine production is essentially in the hands of private companies, but in the last few years the great increase in the commercial value of wine has attracted the investment of multinational corporations. Cooperative wineries and consortiums play a minor role here: they contrast with the individualistic, highly competitive Tuscan character. Another important aspect is that there are only a few indigenous grapevines in Tuscany (e.g. Prugnolo Gentile, considered a clone of Sangiovese or Grechetto) and few varietal wines (e.g. Morellino di Scansano, Vernaccia di San Gimignano). Most wines are blends of three or more grapes, and white grapes have been traditionally mixed with red ones to produce red wines such as Chianti.

Unlike Piedmont, France did not exert a strong influence on Tuscany in the 19th century; however, the influence is felt now with the "superTuscans" (see specific descriptions).

Some cultivars have different names here, e.g. Trebbiano is called Procanico.

Sparkling wine is rarely produced, whereas Tuscans love passito wine.

In summary, the Tuscan areas of production are as follows.

- 1) The area north of the Arno River, a minor one, develops at the foot of the Apuane Alps and in the Province of Lucca. It essentially produces white wines from a blend of Trebbiano, Vermentino and Grechetto.
- 2) The area between Florence and Siena, which includes the Chianti and all five Tuscan DOCGs. Sangiovese is by and large the major component of all these blended wines.
- 3) Toscana marittima, i.e. the western part of the region facing the north Tyrrhenian Sea. Both red and white wines are produced here, where the gentle slopes, the sandy/marly nature of the terrain and the mild climate are ideal for viticulture. In the last few years the wine business has made important progress here. The area includes Elba Island, where production is limited but appreciated for its unique character.
- 4) Southern Tuscany, approximately from south of the Ombrone River to Monte Argentario and the volcanic relief of Pitigliano. Mainly white wines are produced in the latter locality.



Fig. 81. The Brolio castle in the Chianti district

BOLGHERI SASSICAIA DOC (TUSCANY)

At the edge of the inhospitable stony plain, on the lowest slopes of the Colline Metallifere (Metalliferous Hills), there is a kind of amphitheatre sheltered from cold

winds but open to sea breezes and the afternoon sun. The stony ground is well-drained and rich in minerals. Here, the San Guido wine estate contains an ideal niche for the cultivation of Cabernet. An experiment begun in the second half of the '60s led to the production of a wine that became a worldwide success within just a few years. Bolgheri Sassicaia DOC (fig. 107) is produced in a restricted portion of the Bolgheri area from Cabernet Sauvignon (85%) and Cabernet Franc (15%) grapes harvested late in the season. Alcohol content: 13% vol.; aged 23 months. The wine represents the top of Italian production, and is so renowned abroad that it is now difficult to find in Italy. It has exceptional characteristics, with a very rich perfume and extraordinarily fine aromas (the hints of fruit and spice make it even more enticing). It has a soft, embracing, elegant flavour, with sweet, rounded tannins, a perfect balance and a lingering finish. Veronelli defines it a "cult" wine and praises it with



Fig. 107. Bolgheri Sassicaia vineyards grow on a stony ground

words and comparisons worthy of an ancient bard. He then warns that with just one bottle of Sassicaia 1985 one could buy a large scooter. Production (2002): 150,000 bottles.

BRUNELLO di Montalcino DOCG (TUSCANY)

"Del leggiadretto/ del sì divino/ Moscadelleto/ di Montalcino" ("Such lightness/ so divine/ Moscadelleto/ of Montalcino") sang Redi in the second half of the 17th century, testifying to Tuscany's longstanding winemaking tradition. Although no longer a Moscadello, Brunello di Montalcino would still be deemed worthy of such praise. The area of production of Brunello DOCG is not very extensive: less than 20,000 ha, of which only 2000 are currently dedicated to specialised vineyards. A particular clone of Sangiovese, Brunello is cultivated on the most disparate terrains (Galestri, Palombini, lacustrine and marine clays and sands, portions of Macigno and of calcareous turbidites). Selected by enterprising winemakers, it reveals its outstanding qualities only after long ageing, after having lost its roughness due to tannins. In the '70s Brunello di



Montalcino became Italy's most important wine and was soon marketed around the world. It is a varietal wine produced from highly selected Brunello vines; only vines about twenty years old are used in the production of Brunello DOCG. The yield is maintained particularly low (80 q/ha), and the wine is aged in oak barrels for 30 months and then in

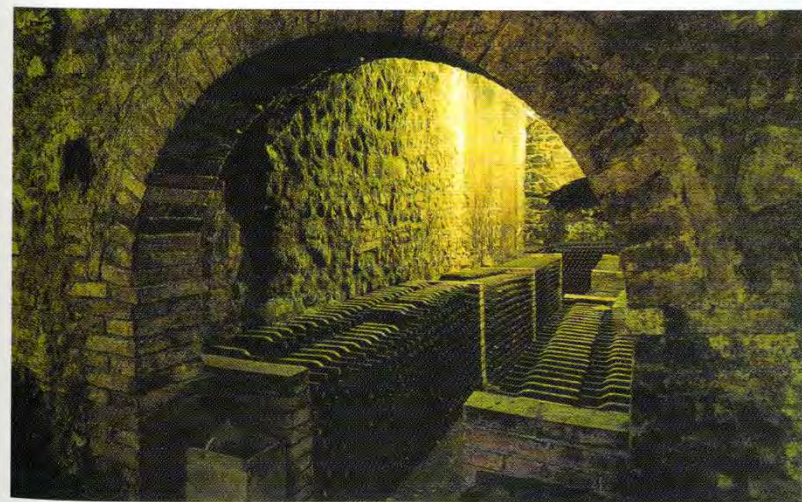


Fig. 108. Grape of Brunello di Montalcino (above) and cellar for ageing the bottled wine

bottles for at least another 12 months. Alcohol content: min 12.5% vol., max 13.5% vol. It is a deep ruby red wine that takes on garnet hues and brightens with ageing; the aroma is of extraordinary intensity, from ripe fruit to spices and sweet tobacco; it is a tightly woven and perfectly balanced wine with great body and velvety tannins. Suitable for long ageing, it is a memorable wine. Average annual production: 50,000 hl.

CESANESE DOC (LAZIO)

The traditional area of production of this lovely red wine, already acclaimed in a 17th century chronicle, comprises three adjacent DOC regions named *Affile*, *del Piglio* and *di Olèvano Romano* (to boost falling production, the possible unification of the three DOCs is being considered). The region lies in the hinterland of the Roman countryside, on the westward facing slopes of the first Apennine hills: it includes the north-western offshoots of the Ernici Mts. and of the small ridge of Affilani Mts., whose slopes gradually decline into the gently rolling plain of the Latina Valley.



The highest sector, with peaks over 1000 metres in altitude, consists of limestones widely modelled by karstic erosion into gullies, spires and pinnacles, especially in the Arcinazzo Tablelands, a karstic basin dotted with dolina and sinkholes, whose floor is mantled by the typical "terra rossa". The vines grow on portions of *terra rossa* (sometimes lightened by calcareous detritus) or on calcareous detritus and *terra rossa* accumulated at the foot of slopes. At lower altitudes the hills consist of sandstones, which from 400 metres downward are mantled by



Fig. 109. Small vineyards and associated olive groves near Olevano Romano, at the western border of the Apenninic chain

increasingly thick layers of volcanic material ("tuff") erupted from the Lazio Volcano (Albani Hills). Extensive vineyards trained in rows or pergolas are cultivated on the reddish-brown soils derived from weathered tuff. Some vineyards grow on strips of marly terrains ("Orbulina marls" of Miocene age) interposed between the limestones and sandstones: the more easily eroded marls crop out in "corridors" between the sandstone hills covered with thick chestnut woods and the limestone hills studded with beech trees. Connoisseurs can tell the difference between wines from high altitudes and those from hilly regions or plains; differences may be ascribed to the variable maturation of grapes at various altitudes, and to the soils derived from distinctly different substrates.

The cultivars used to produce this wine are Cesanese Comune and Cesanese d'Affile (a local clone derived from the former vine). Traditionally, Cesanese wine can contain up to 10% black (Sangiovese, Montepulciano) or white (Trebiano Toscano, Bombino) grapes, which make for a more aromatic wine.

This ruby red wine takes on garnet hues with ageing; its delicate perfume is characteristic of the predominant grape variety; it has a soft, slightly bitter flavour. Produced dry (or distinctly dry), medium-sweet or sweet. Alcohol content: 12% vol.

Roman tavern-keepers anxiously await its arrival in the early months of each year.

CHIANTI (TUSCANY)

Selecting the best wine in this appellation is like trying to identify the most beautiful woman in the world (with the risk of starting a new "Trojan War"). Adopting a historical criteria, we will only consider the wine from Brolio Castle, where Chianti was first "invented" (fig. 110).

CHIANTI CLASSICO CASTELLO DI BROLIO DOCG

This wine is the modern version of that produced by Baron Ricasoli in the second half of the 19th century after lengthy testing at Brolio Castle. A set formula was used to produce a high quality wine that could compete with renowned wines



Fig. 110. Typical Tuscan landscape with highly specialized vineyards on the slopes of Chianti (Brolio)

from France and Piedmont, and could be aged a long time without losing verve. The recipe, which has remained famous in the history of Tuscan winemaking, was: 7/10 Sangiovese, 2/10 Canaiolo, 1/10 Malvasia. This blend, along with controlled vinification and ageing, eliminated the tart and unpleasant edge in Sangiovese and led to the production of a fine, fruity wine with a rich aroma, suitable for long ageing. Although the original recipe was subsequently modified, the basic formula has remained the same. Nowadays, a small dose of Cabernet Sauvignon is added, and the wine is aged 18 months in barriques and then 8 months in bottles, thereby producing a ruby red, full-bodied wine with an intense aroma of cherry, prune, cinnamon, blonde tobacco and cocoa, and with soft, velvety tannins and a long, persistent finish. The alcohol content is rather high: 13.5% vol.

As the vineyards grow on an extremely variable geological substrate (Macigno Galestri sandstones, calcareous turbidites and Argille Scagliose are juxtaposed in a rather small area), growers have carefully selected cultivars suited to every type of terrain.

Production (1998): 150,000 bottles.

EST! EST! EST! di Montefiascone DOC (LAZIO)

In the church of Saint Florian at the entrance to the village of Montefiascone there is a tombstone with the inscription: "*Est est est pr[opter] nim[ium] est hic Jo[annes] De Fuk do[minus] meus mortuus est*" (est, est, est: for too much est my lord, Joannes De Fuk, died here). According to legend, the name of this ancient wine is linked to the episode mentioned on the tombstone. At the start of the 12th century Giovanni De Fugger, a German nobleman travelling through Italy in the entourage of Henry V (who was on his way to be crowned Emperor of the Holy Roman Empire), sent ahead his faithful servant to find taverns with particularly good wine and to identify them by writing est ("here it is") on the tavern wall. At Montefiascone the manservant was so impressed by the exquisite wine that he wrote est not once, but three times; when De Fugger finally reached Montefiascone, he drank so much of the delicious wine that he died...

The village of Montefiascone lies on the highest of a series of scoria cones that



Fig. 111. The Montefiascone caldera is surrounded by farmed slopes partly covered by vineyards (DOC Montefiascone). Lake Bolsena in the background

Pliocene marine clays and sands. A wine-making region since the time of the Etruscans, it has always produced red wines known to resemble Chianti and Brunello di Montalcino. Although these affinities brought it to the attention of the public, they conditioned and overshadowed Morellino wine until it acquired its own identity, which led to its appreciation abroad. The Morellino cultivar is an officially recognised Sangiovese clone, which has yielded excellent results in this area and climate. The wine may be produced from this cultivar alone or from a blend containing other red grapes (maximum 15%). The wine's characteristics are



Fig. 115. Bottle of Morellino di Scansano

MORELLINO di Scansano DOC (TUSCANY)

This wine is produced in a hilly region just behind the Uccellina Mts., and delimited by the Ombrone River to the north and Albegna River to the south. The area is characterised by three main lithologies: the coarser facies of the Macigno Formation, which breaks up easily in the salt air, schistose marls and Galestri, and

enhanced by the well-drained soil rich in minerals, and by the perfumes transported by sea breezes and the Mediterranean maquis, thereby yielding a product no doubt among Italy's finest wines. Its organoleptic properties are: ruby red colour (takes on garnet hues with ageing); vinous, evanescent, intense aroma; austere, warm, slightly tannic flavour. Alcohol content: 11.5% vol. The Riserva type must be aged two years and have an alcohol content of at least 12% vol. Average annual production: 22,000 hl.

ORVIETO CLASSICO superiore DOC (UMBRIA)

Orvieto wine represents an oddity for Umbria, in as much as it is the only wine from this region partially produced on volcanic terrain; all other Umbrian wines are produced on sedimentary terrains. Lithoid tuff lies above Plio-Pleistocene clays and sands; the tuff forms very thick banks with almost vertical cliffs and the flat surfaces on which the city of Orvieto

was established (fig. 116). Since Etruscans times tunnels and caves to be used as wine cellars (to allow the wine to ferment at a constant temperature) have been dug within these banks. The volcanic nature of the substrates, rich in potassium and minerals, favours the development of grape vines and the quality of grapes.

Orvieto wine is historically one of the oldest known wines: from the Etruscans to the Popes, who stocked up on it, from painters such as Luca Signorelli, who included it in the payment of his works, to Gabriele D'Annunzio who defined it "sunshine in a bottle". It is currently a very diffuse wine, appreciated both in Italy and abroad. It is produced from a blend of grapes: 50-65 % Procanico (a clone of Trebbiano Toscano), 15-25% Verdello Grechetto and 20-30% Drupeggio. It has a straw yellow colour, a delicate aroma, and a fine flavour with a slightly bitter aftertaste. Alcohol content: 11-13% vol.

Average annual production: 100,000 hl.

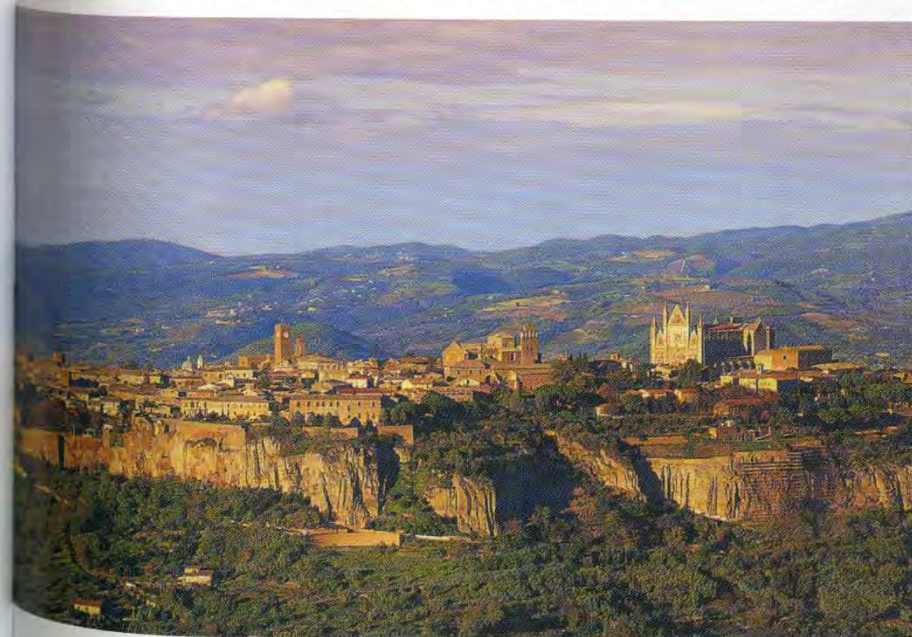


Fig. 116. The town of Orvieto with its famous cathedral is built on top of a thick bank of tuff, and is surrounded by vineyards that produce a well known white wine

ORVIETO PASSITO, MUFFATO IGT

Particular climatic conditions in the Orvieto area frequently determine the development of *Botrytis*, i.e. "noble rot". In autumn the foggy mornings favour the growth of this mould on overripe grapes, whereas during the day the warm sun concentrates sugars in the berries from which a sweet, extraordinarily "mellow" wine particularly rich in aromatic components is produced. This singular process is similar to that used to produce the famous French Sauternes or Hungarian Tokay. The tradition of a slightly sweet, botrytised Orvieto wine is still alive. It is produced from a blend of grapes, i.e. Procanico, Grechetto, Trebbiano, Malvasia, Chardonnay and Sauvignon, in varying proportions. The character of this wine is not determined by the blend of grapes, but rather by the peculiar management of the grape harvest and vinification. The grapes affected by *Botrytis* are harvested late in the season, towards mid-Autumn, and after fermentation the wine is left in barriques for at least 6 months before bottling. The wine has a rich golden colour, a subtle aroma of fruit and dried flowers with a hint of *Botrytis*, and a rich, dense, silky, well-balanced flavour. Alcohol content: 10-12% vol.

POMINO DOC (TUSCANY)

Pomino is produced in an extremely small, very famous region adjacent to the Chianti area. In 1716 the edict of Grand Duke Cosimo III placed Pomino among the four types identified and codified as the best Tuscan wines. In the second half of the 19th century, for the first time, specialised vineyards were created and noble cultivars of French origin were introduced into the area. In 1983 Pomino singularly received DOC status.

The less than 20 km² region lies north-east of Florence. Although adjacent to



Fig. 117. One of the best traditional wines from Tuscany is Pomino, produced in a small area north of Florence

the Chianti DOC region, it carefully distinguishes itself and does not share its territory with any other wine.

The substrate consists of Oligocene-Early Miocene Macigno turbidites: here marly-silty facies and fine sandstones prevail. To the north-east, Mt. Falterona, 1654 metre-high, shelters the Pomino region from cold northern winds. It is an ideal setting, typical of Tuscan viticulture.

Although both red and white DOC wines are produced in the Pomino region, the choice product is Pomino Rosso. The latter is produced from Sangiovese (60-75%), Canaiolo, Cabernet Sauvignon and Cabernet Frane (15-25%), and Merlot (10-20%). It is bright ruby red wine with garnet hues that become more pronounced with ageing. It has a vinous, fruity perfume that improves with age; the dry slightly tannic flavour becomes velvety with age. Alcohol content: 12% vol.. Although less renowned than Brunello or Sassicaia, Pomino nevertheless belongs to the finest class of Tuscan wines.

VINO NOBILE di Montepulciano DOCG (TUSCANY)

Another Sangiovese clone called Prugnolo Gentile (the result of selection over the centuries) is cultivated in a small area (less than 100 km²) which straddles the Val d'Orcia and Val di Chiana valleys. The soil is homogeneous, well-drained, and consists of coastal clays and sands deposited by the Pliocene sea at the peak of transgression during post-orogenic subsidence. The east-facing hills adjacent to the Valdichiana are blessed with morning sun and are well-ventilated. Already in the 17th century Tuscan

nobles had a predilection for Montepulciano wine, giving rise to the term "*vino nobile*". In "Bacchus in Tuscany" Francesco Redi extols: "Montepulciano is the king of wines". It has remained famous to this day, and in the last two decades the qualitative standard has grown to such an extent that it is now one of Italy's most prestigious red wines. *Vino Nobile di Montepulciano* consists of Prugnolo gentile (60-80%) and Canaiolo nero (10-20%) grapes, and of other cultivars with white berries (max 10%). Alcohol content: 13% vol.. It is aged in oak casks for at least 2 years, 3 years for the *Riserva* type. Once the original heavy tannic overtones disappear, fruity, spicy rose aromas are released that give way to vanilla flavours and soft, round tannins with an extraordinarily long finish. Average annual production: 35,000 hl.

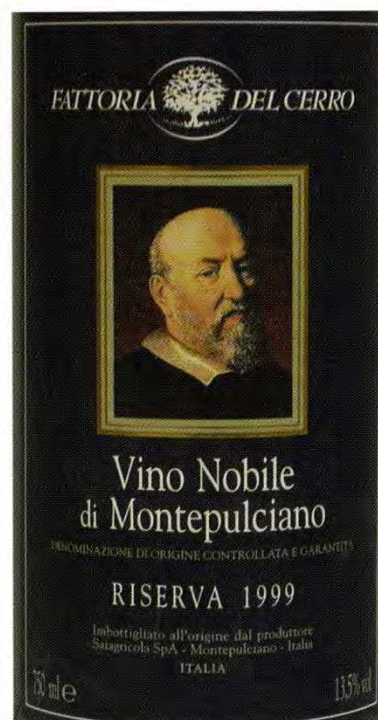


Fig. 124. Label of *Vino Nobile di Montepulciano*, one of the most prestigious reds from Italy