

Viticultural landscape: history of a challenging coexistence between grapevines and humans

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Abstract. *Vitis vinifera* is the most grown grapevine species, which originated about 6 million years ago in the trans-Caucasian area as the ancestral (wild) type *V. vinifera* spp. *sylvestris*. On the other hand, the human being (*Homo sapiens*) is much younger since he originated about 300 000 years ago in North Africa. Viticulture began about 11 500 years ago after the domestication of the wild type, which occurred in two areas: trans-Caucasus and Levant. Through cultivating vines, prehistoric humans transitioned from being nomadic gatherers to farmers and began to shape and modify the landscape. Landscape has a scientific definition (given by the Council of Europe Landscape Convention -CELC), as follows: “The landscape is part of the land, as perceived by local people or visitors, which evolves through time as a result of being acted upon by natural forces and human beings”. The goal of CELC is the protection, management and planning of the landscape, with reference to the entire territory of the state parties, promoting public awareness and participation. Information on viticultural landscapes is found from figurative art, from literature and recently from the photography, witnessing the historical evolution. Examples from European countries are reported. Current landscape attentions include biodiversity and the use of natural materials (woody poles, no plastic, no herbicides). Landscape represents an emotional factor which can affect the wine perception, as well. The UNESCO World Heritage sites and the Intangible Cultural Heritages related to viticultural areas are listed.

1. Introduction

Vitis vinifera L., the most grown grapevine species worldwide, originated about 6 million years ago in the trans-Caucasian area as the ancestral (wild) type *V. vinifera* spp. *sylvestris* [1]. On the other hand, the human being (*Homo sapiens*) is much younger since he originated about 300 000 years ago in North Africa [2]. Viticulture began about 11 500 years ago after the domestication of the wild type, which occurred in two areas: trans-Caucasus and Levant [3]. Through cultivating vines, prehistoric humans transitioned from being nomadic gatherers to farmers and began to shape and modify the landscape in the different areas where they migrated. Landscape has a scientific definition (given by the Council of Europe Landscape Convention -CELC), as follows: “The landscape is part of the land, as perceived by local people or visitors, which evolves through time as a result of being acted upon by natural forces and human beings”. The goal of CELC is the protection, management and planning of the landscape, with reference to the entire territory of the state parties, promoting public awareness and

participation. The paper will focus on Europe, emphasizing Italy and France.

2. Evolution of viticultural landscape

Information on viticultural landscapes is found from figurative art, from literature and recently from the photography, witnessing the historical evolution. Even though viticulture and wine making belong to ancient civilizations such as the Egyptians, the Phoenicians, the Jews, the Sumerians, the Etruscans, the Greeks and the Romans, only from some of those we can get direct evidence about landscape; some examples are reported below.

2.1. Greek civilization

The first evidence of human settlement can be traced back to the Neolithic (up to 3000 BC) especially in Thessaly, but the first great western civilization flourished on the Island of Crete (Cretan or Minoan civilization), with

Knossos as its main city. This civilization came to an end around 1200 BC when the Mycenaeans from the Peloponnese arrived, and later they were in turn destroyed by the Dorians around 1100 BC. The Dorians were a rough and warlike people, and they ruled Greece in a barbaric manner up to the VII century BC. During that period Iliad and Odyssey were written by Homer, while Hesiod wrote Works and Days. The VII and VI centuries BC correspond to the development of the polis (from ancient Greek “πολις”, city) and colonization (*Magna Grecia*), while the literature was characterized by the lyric poetry. The V and IV century BC are termed the Attic period when the Greek civilization reached the top and democracy developed, together with the tragedy, the comedy, the philosophy, the historiography and the rhetoric. From the III to the I century BC (Hellenism) the civilization declined, while a new one (the Roman) developed.

Vines and wines are mentioned in many pieces of literature, from Homer’s *Odyssey* to Nonnus of Panopolis’ *Dionysiaca* (V century A.D.), and the first archeological finds dealing with wine making can be traced back to 4300 BC (prehistory) in Dikili Tash [4]. On the other hand, information on landscapes is scarce; only figurative arts can help, like for instance the shield of Achilles, a handwork recovered in 2008 from a shipwreck which occurred to the southeast coast of Africa in the II century AD and shown, as part of the Pinault collection, in “Punta della Dogana” museum in Venezia (2017). Although Achilles is a mythological character of the Greek literature, and the shield is not actually his, scenes of grape harvest and crushing are depicted, set in a vineyard of goblet-trained vines (figure 1).

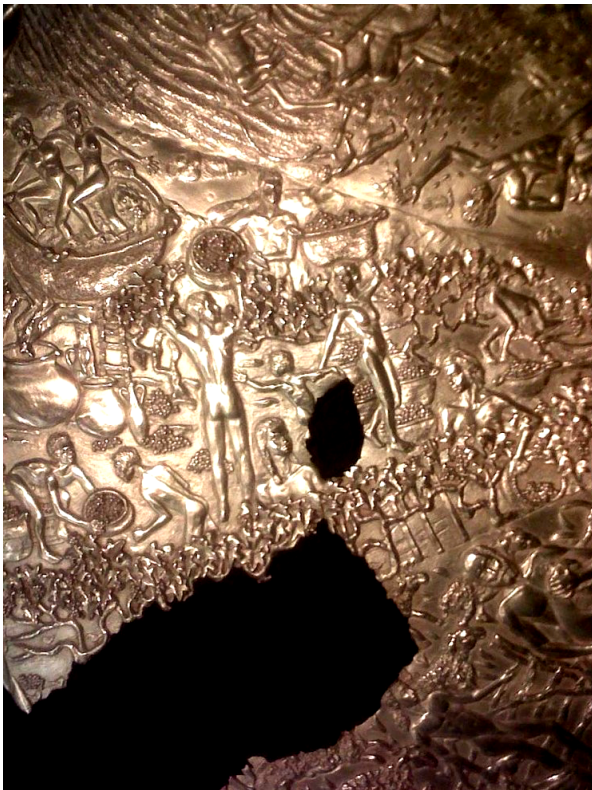


Figure 1. A detail of the shield of Achilles, a 2017 copy by Damien Hirst, Pinault Collection, Venice, Italy.

2.2. Roman civilization

According to mythology Rome was founded on 753 BC by the Latins, beginning with a kingdom (till V century BC), then the republic (IV – I century BC) and finally the empire (I-V century A.D.). Latin literature emerged in the III century BC and many writers mentioned grape growing and wine making, including Cato (III-II century BC) in *De agri cultura*; Varro (I century BC) in *De re rustica*; Catullus (I century BC): in *Carmina*; Virgil (I century BC) in *Georgica*; Horatius (I century BC) in *Carmina*; Ovid (I century BC): in *Metamorphosis*; Seneca (I century A.D.) in *Epistulae morales ad Lucilium*; Plinius the elder (I century A.D.): in *Naturalis Historia*; Columella (I century A.D.) in *De re rustica*; Phaedrus (I century A.D.) in *Fabulae*. Moreover, we have information about viticulture, enology and landscapes in figurative arts (mosaics and frescoes) where it is clear the dual influence of the Etruscans who trained vines to climb trees (tree-trained vines), and the Greeks, who colonized the southern part of Italy – (known as *Magna Grecia*) who used the goblet as training system (figure 2). The tree-trained vines were present mostly in the northern-central part of Italy, while the goblet in the south and in the territories conquered along the Danube, Rhine and Rhone rivers; in these last areas another training system was used as well, termed *Kammerbau* (a very low overhead) [5]. Even nowadays the two influences are present in Italy, being most southern vineyards trained goblet and central-north vineyards trained “pergola”, “Sylvoz”, “raggi”, etc.; tree-trained vines are no longer commonly grown, except in the Aversa area of the Campania region (Italy).

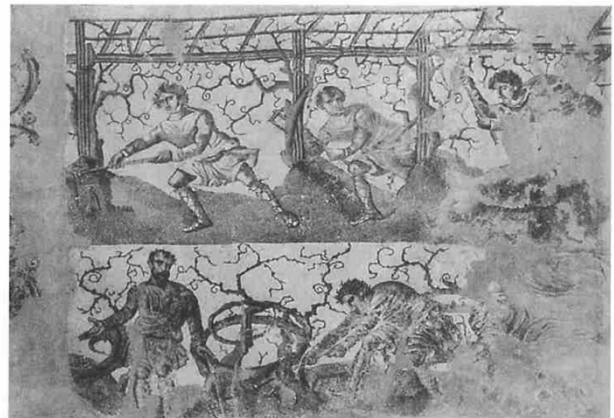


Figure 2. III century A.D. mosaic showing pergola-trained (above) and goblet-trained (below) vines, Khenchala, Algeria [6].

2.3. Middle Age

France and Italy will be described below. After the fall of the Roman Empire (476 A.D.) Roman-barbarian kingdoms arose in Europe, including the kingdom of the Franks, with Clovis as the first king, and Christianity spread throughout the continent. Benedictine monasticism settled in many European countries, particularly in France where two branches developed, in Cluny and in Citeaux. The latter is related to the Cistercians benedictine order, established in Burgundy in 1098, composed of monks skilled in grape growing and wine making, who shaped the

viticultural landscape of France. In some manuscripts of that period (VIII-XIV centuries), stored in libraries of France, in Paris and Toulouse there are drawings depicting vines trained using Cordon de Royat or goblet, similar to those still used in France today (figure 3). In Italy the viticulture landscape was characterized by tree-trained vines, according to historical documents (miniatures and paintings) as the heritage of the Etruscan culture.



Figure 3. Graphic representation from an VIII century A.D. book of a spur-pruned vine, Bibliothèque Nationale Française, Paris, France.

2.4. From Renaissance to XIX century in Italy



Figure 4. Saint Francis in the desert, painted by Giovanni Bellini in 1480, Frick Collection, New York, USA.

After the middle age there was a transition from monastic to aristocratic viticulture. The landscapes were still dominated by tree-trained vines or vines climbing poles, as documented in several paintings, such as Saint Francis in the desert (1480) by Giovanni Bellini (figure 4), the fresco Martyrdom and transfer of the beheaded body of Saint Christopher (1455) by Andrea Mantegna (figure 5), the frescoes in Villa Barbaro, Maser, (1560) by Paolo Veronese. As concerning the literature, tree-trained vines

in northeastern Italy are described in the book written by Giacomo Agostinetti titled “Cento e dieci ricordi che formano il buon fattor di villa” (1679) – “110 memories which train a good farmer”, by Charles de Brosses (Tour of Italy, 1739-1740) and by Wolfgang Goethe (Tour of Italy, 1786).



Figure 5. Martyrdom and transfer of the beheaded body of Saint Christopher, fresco by Andrea Mantegna in 1455, Chiesa degli Eremitani, Padua, Italy.

2.5. XX – XXI century in Italy

At the beginning landscapes were still characterized by either tree-trained or poles-trained vines, and viticulture was still mixed with other crops rather than specialized. This is documented in Umberto Moggioli’s painting (Primavera a Treponti, 1914, “pergolas”, figure 6) and by the first pictures. After World War II, viticulture moved fast from mixed to specialized vineyards [7], with different training systems, in the plain (33% of total growing areas), in the hills (60%), and in mountains (7%), resulting in fascinating views [8].



Figure 6. Painting by Umberto Moggioli showing a mixed viticultural system of tree-trained and poles-trained vines, Galleria Internazionale d’Arte Moderna Ca’ Pesaro, Venezia, Italy.

2.6. Current issues

Viticulture, like all human activities, is dealing with the sustainable development, defined as “development that meets the needs of the present, while safeguarding Earth’s

life-support system, on which the welfare of current and future generations depends” [9]. Key aspects of sustainable viticulture include maintaining biodiversity (such as hedges, trees other than vines, annual crops, flowers and small animals, figure 7), using woody poles instead of plastic and avoiding herbicides. These principles are crucial for the establishment of new vineyards.



Figure 7. Flowering of mountain vetch (*Vicia cracca*) at Villa Cavarena, Mazzurega, Italy. The hornbeams (*Carpinus betulus*) canopies in the background surround the vineyard and serve as a windbreak [10].

2.7. Buildings/architectures

Viticultural landscapes can be enhanced through the incorporation of artistic elements, such as the Solar Gate at Ca’ del Bosco in Italy, designed by Arnaldo Pomodoro or by distinctive cellars designed by renowned architects.

Examples include Castelbuono Carapace in Italy by Arnaldo Pomodoro, Rocca di Frassinello in Italy by Renzo Piano, Petra in Italy by Mario Botta, Antinori Bargino in Italy by Marco Casamonti, Inniskillin in Canada by Frank Lloyd Wright, Bodegas Protos in Spain by Richard Rogers, and Bodegas Portia in Spain by Norman Foster.

2.8. Services

They represent the third level of the landscape, following the vines and the buildings or artistic structures, as something evocative. For instance, the Cinematic winery Rocca delle Macie (Chianti area, Italy) founded by Italo Zingarelli, the movie producer known for his work with Bud Spencer and Terence Hill, combines the stunning Chianti landscape with the cinematic experience of the movies of the two actors.

2.9. UNESCO World Heritages

According to some environmental, anthropological and historical criteria, the following viticultural areas became World Heritages: Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato; Le colline del Prosecco di Conegliano e Valdobbiadene; The climates, terroirs of Burgundy; Champagne hillsides, Houses and Cellars; Jurisdiction of Saint-Emilion; Lavaux – Vineyard Terraces; Tokaj wine region Historic Cultural Landscape; Wachau Cultural Landscape; Alto Douro Wine Region; Landscape of the Pico Island Vineyard Culture; Val d’Orcia; Portovenere, Cinque Terre and the islands (Palmaria, Tino and Tinetto).

Moreover, there is a UNESCO Intangible Cultural Heritage list, including: The traditional agricultural practice of cultivating the “vite ad alberello” (head-trained bush vines) of the community of Pantelleria; Art of dry-stone walling, knowledge and techniques, covering many countries like Croatia, Cyprus, France, Greece, Italy, Slovenia, Spain, Switzerland.

3. Conclusions

Finally, the viticultural landscapes must be preserved since they represent both a personal right and a lasting economic value.

4. Acknowledgements

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