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“Dry stone perspectives: challenges after the UNESCO inscription”

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AGRARIAN LANDSCAPES AND DRY STONE ON THE ISLAND OF BRAČIA



17th international congress on dry stone
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Abstract:

The agricultural landscape of the island of Brač is meshed by dry stone. The most characteristic imprint is undoubtedly that of the stoning walls mounted and arranged in the shape of a hut or in ridges. The construction of these walls (cogna) is very varied: they are built with karstic materials. A particular type of wall is the lace wall (ingula), a wall that is simply mounted in a rapid stack with empty spaces; it is found in breeding areas, at the edge of pasture. In the walls, there are many small facilities for the daily life of the peasants: rabbit trap, cooler, tiny shelter to tame a suckling ewe and an orphan lamb, enclosure to sort the sheep, shelter against the wind, stairs, stones with holes for the vines in espalier and

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very beautiful walls of hive... The field huts (bugna), quite numerous, are most often caught in this large screen. They are not very large, built-in stages, with a rather low vault and very thick walls which counterbalance it.

Brač is a karstic island and, therefore, has no surface water: there are no springs on the island, but small aquifers that outcrop on clay layers. The inhabitants of the island have always been able to find water, mainly by collecting rainwater; also, the island is dotted with a multitude of small developments, each more ingenious than the other and signs of a great water culture

This dry-stone heritage of Brač deserves to be known and valued. A European LEADER project entitled "The know-how of dry stone in the Mediterranean at the service of landscapes and sustainable development", a cooperation project between the territories of Mont Ventoux (France) and the Island of Brač (Croatia) is underway.

Keywords: *Croatia, dry stone, rural landscapes, water systems, European program*

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Introduction

In 2010, on the island of Brač in Croatia, I carried out a study mission for local associations with which I am currently participating (2021-2022) in a European LEADER program pairing the island and the Park. Regional of Ventoux in Provence (France).

HISTORY OF AGRARIAN LANDSCAPES

At the time of the Illyrian civilization, from 2000 BC. JC. (Bronze Age) to 200 AD. JC., the inhabitants of the island lived in small communities cultivating millet or other rustic cereal in the bottom of the valleys, then arranging the slopes in terraces supported by dry stone walls. They traded with the Greeks settled in the ports. An oppidum, the citadel of Ložisca, occupied approximately 5 ha at the time of its full development, it was the largest Illyrian city of the island; it was destroyed by the Romans around the 4th BC. JC.

The Romans conquered the island in II BC. JC. It will be part of the empire until III AD. They opened and exploited quarries employing an army of slaves, those between Splitska and Skrip, with the stones of these quarries, they built the palace of Diocletian

The Venetians are present from the 11th century, exploiting wood, cattle, honey, vines, and quarries. Neresziska is the ancient capital of the representative of the Doge of Venice who brought back the security of the sea and freed trade for his exclusive benefit. The population which had concentrated inland because of the insecurity of the coasts, resettled, around the 15th century, in the reorganized and fortified ports, as in Pučišća. As all around the Mediterranean, olive trees, vines and cereals were cultivated, and sheep and goats were raised. In the 18th century, the

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Monastery of Blaca was the richest property on the island with more than 3,000 olive trees, vines and herds.

At the end of the 19th century, the phylloxera crisis, in Western Europe and particularly in France, generated an important wine trade on the Dalmatian coast (pending the regeneration of western vineyards by American plans) which determined the extension of the vineyards of the region island: its wine became renowned and awarded in France. The slopes of the island were then planted with vines, replacing the forest, but also, in part, traditional crops such as the olive tree. We can think that this rapid agricultural expansion took place at the expense of the development of terraced slopes and that the impressive stone piles (gomila) date for many from this period. The phylloxera arrived at the beginning of the 20th century in the island bringing the ruin of agriculture based on this monoculture: a large part of the rural population, working as agricultural workers for the big landowners, had to emigrate to New Zealand, Australia or America leading to significant rural abandonment.



Picture 1

Picture 2



The current agrarian landscape has not regained the magnitude of the beginning of the 20th century. In particular, a large part of the

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abandoned vineyard land has been invaded by Aleppo pines in the middle of which we discover a multitude of gomila, evidence of ancient cultures. Since the 1950s, the European demand for olive oil increasing, the cultivation of the olive tree redeveloped with the help of the state and reclaimed land on recent terraced developments. The valleys, which recover the colluvium from the erosion of the slopes, are richer and generally cultivated. They are carefully stoned and often the gomila border the shallows at the start of the slopes. These valleys are often cut by small low walls which retain the earth and which can be used, if they have a double facing, as a crossing path.



Picture 3



Picture 4

Breeding, mainly sheep, is more developed in the center of the island where large pastures allow extensive rangelands. The dryness of the summer, and the cold, even the snow of the winter, can make breeding difficult. In these pastoral spaces, there are many small enclosures, surrounded by walls, with some crops of cereals or grass in addition to feeding the livestock.

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THE DRY-STONE PLACE or the main dry-stone buildings

The agricultural landscape of the island is marked by dry stone, it meshes the territory with its heaps of stone, its walls and its drailles, it is everywhere omnipresent even in the woods which have invaded the old lands of vineyards.

The walls

The construction of the walls (cogna) is very varied, it depends on the materials used but also on different practices. They are built with karstic materials from the Cretaceous secondary which provide either polygonal blocks of Urgonian facies, or slates of Barremian facies, or, in the villages, cut stones from numerous quarries.



Picture 5 *lauzes du secondaire crétacébarrémien*



Picture 6 *mur ingula*

A particular type of wall is the lace wall (ingula), a wall that is not built but simply mounted in a rapid stack with empty spaces between the stones. These walls are found in livestock areas as a boundary for grazing, sometimes covered with thorns to prevent animals from jumping these fences. They are incised with semi-circular openings to allow the passage of animals without risk to the walls.

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Arrangements in the walls

In the walls there are many small facilities for the use of the daily life of the peasants: the rabbit trap, the tiny shelter to tame a suckling ewe and an orphan lamb, the shelter against the wind, the larger shelter to allow the shepherd to make a fire and prepare his food, there are also flying stairs, stones with holes for the vines in espalier...



Picture 7 abri pour agneau

Picture 8 abri coupe-vent

Hives

There are many flat walls, sometimes with hives entirely cut in stone and installed on low walls. There are also enclosures for bees as in Blaca: these are beehive benches surrounded by a large enclosure to protect them against predators.

Stone-heap or piles of stones

The most characteristic imprint of the landscape is undoubtedly that of the stone walls (gomila), whose total volume would represent that of the pyramids of Egypt! They are mounted and stored in circles, in ridges or in a fake little hut (a pile of tidy stones takes up less space than a pile of loose stones!). They represent an enormous stone work provided, over the centuries, by a large rural workforce. The development of these stony

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soils, where stone work was necessary to clear some arable land, must in part date from the period of strong and rapid expansion of the vineyard when a large rural population was able, in a few years, to upset these slopes. It is not uncommon to see a slope with gomila-ridges, in the direction of the slope, as wide as the earth they free.



Picture 9



Picture 10



Picture 11



Picture 12

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Paths

The lithic network of walls and paths is very dense (about 2,500 km on the island). It often corresponds to property boundaries (the thickness of a wall can be a sign of the owner's wealth). The paths are lined with double facing walls to protect the farmland, mainly along the large drailles where the herds pass. They can be stony and serve as ferries at the bottom of a valley. In the mountains, they are ensured by retaining walls wedged by large stone slabs.



Picture 13



Picture 14



Picture 15



Picture 16

The huts

Field huts (bugna), quite numerous, are most often caught in the large screen. They are not very large, built-in stages, with a rather low vault and very thick walls which counterbalance it. This method of construction gives them a squat appearance with a fairly flat roof. The very low entrance is usually facing west to protect the interior from wind and rain.

In the middle of the walls-gomila, sometimes small houses are built.

Miscellaneous constructions

The roofs of the houses (kamena krovišta) are covered with flat stones whitewashed with lime which repels the strong heat by filling the gaps between the stones and reflecting the sun's rays. Lime is also used to disinfect roof surfaces.

Bread ovens (krušne peći) are small open dry-stone constructions with a roof frame made of stone slabs. They have a small opening closed by a metal door.

Lime kilns (vapnenice) are numerous. The construction begins with the digging of a pit which will be surrounded by large slabs of stone. Above the surface of the earth, the very body of the covered oven is raised by means of large slabs of stone. The roof will be closed by a large flat stone, All the stones that will surround the work must be soft enough to burn well. After 8 to 10 days of sustained fire, the roof and the entire construction collapsed, a sign that all the stone had been consumed and transformed into lime.

WATER SYSTEMS

Brač is a karstic island and, consequently, it has no surface water: the dolomitic slab descends towards the north, springs emerge in the sea but cannot be exploited because they are invaded by the salt bevel. There are no springs on the island, but small aquifers which outcrop on clay layers and some of which could be communicating.

The inhabitants of the island have always been able to find water, mainly by collecting rainwater, so the island is dotted with a multitude of small developments, each more ingenious than the next and witnesses of a great water culture.

The water points seem to be mainly of two kinds: recovery of rainwater thanks to an impermeable layer of underlying clay, these points are dry or poorly filled in summer, or small shallow aquifers, isolated by a layer of clay and outcropping, they are then always in water.

Each village had several cisterns from which water was drawn by wells; for example in Nerežišća, at the top of the city, a magnificent impluvium recovers the water and brings it to a system of raised cisterns.

But this water was often not enough and the inhabitants, when there was a shortage and drought, had to travel far enough to find water in basins set up in the countryside. Generally, they chose a large impluvium formed by the sloping outcrop of a limestone slab. This impluvium could be blocked by several dry stone walls intended to filter the water. At the lowest point, they built a dam wall to hold back the water; often a cistern could be fitted out there with a well to draw water, accompanied by a trough for the cattle.

For example, in Krtine, a basin always in water was used in Sutivan in period of dryness at approximately 3km on foot.

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An old botanical garden abandoned for 50 years near Supetar: it is laid out in 3 successive impluviums and 2 reservoirs-dams intended mainly for the inhabitants of Supetar and herds.



Picture 17 Krtine

Picture 18 jardin botanique

Near Škrip, in the bituminous mine, at the bottom of the main gallery, we had developed a small outcrop of karstic water; the people of the village, where there was no water, walked 600m underground to pick it up.

In the areas devoted to livestock, there is the counterpart of the Causses lavognes, the lokva, large basins, either temporary or permanent, allowing the herds to be watered with access ramps and drinking troughs.

- Brakta water points: 2 waters of different origins, one seems rain-fed, the other coming from an aquifer; the edge of the lokva is stone wall supported to prevent the earth from spilling into the water.
- In Trolokve, south of Podgazul, there are 3 basins, collective property which served the whole island when the drought was raging. It is on these basins that the restoration work will take place in the spring of 2022.

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There are also modest facilities for collecting water that could be compared to our ewers, they are scree-impluvium, curved to lead the water towards a closed cistern.



Picture 19 lokva de Trolokve

Picture 20 *jardin botanique*

In 1970, the drinking water pipeline coming from the continent will accelerate the abandonment of all these large water systems. Could they not be partially restored to recover rainwater, as long as climate change permits, and to drain small aquifers for agriculture, which is developing and currently uses treated drinking water, the cost of which is necessarily raised.

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Currently, we are participating in a European LEADER cooperation project between VENTOUX park (France) and the island of Brač (Croatia)

"The know-how of dry stone in the Mediterranean at the service of landscapes and sustainable development"

After a difficult launch year due to the epidemic, the program is as follows:

- Fall 2021 - Identification of dry-stone elements in the villages (students and inhabitants)
- Spring 2022 field internship, restoration, and inventory (huts, water systems, walls): 1 week in Provence in the villages of Malemort and Méthamis, 1 week in Brač in Trolokve

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Short biography:

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member of the SPS*



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