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WP4

Platy limestone as cultural heritage

Supplement 3.I

Cultural heritage and limestone. – General overview

Appendix 3.I.7

Final report for the project area in Croatia (South Dalmatia)

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CULTURAL HERITAGE AND LIMESTONE IN THE DUBROVNIK-NERETVA COUNTY - PROJECT AREA KORČULA AND PELJEŠAC

ABSTRACT

The vernacular architecture in the entire project area was formed through agricultural relations some centuries ago, having been constructed in harmony with the traditional forms of coastal construction in all of Mediterranean. Single cell houses were built from rough-hewn limestone blocks in dry stone technique, following already developed modest and typical pattern - a rectangular ground plan that became the basic shape of traditional architecture.

Depending on the circumstances, the early inhabitants adapted or expanded such pattern to suit their needs, always balancing among given resources, functionality and form. Besides architectural type, building techniques and materials are also part of the common heritage, where platy limestone has always had a prominent role. In areas where it was abundant and easily accessible, it had a powerful, almost picturesque, impact on traditional architecture. Until the appearance of barrel tiles as a substitute, it was the only material (besides thatch in hinterland) for solid covering of roofs, making it sustainable and cheap material to build with, providing also an aesthetic note in villages' visual appearance, thus creating specific landscape. Therefore platy limestone is inextricably linked to the development of residential building traditions and cultural landscape on the eastern shores of Adriatic.

In traditional resource management, cultural practices (farming and dry stone masonry) used such morphology of well-bedded platy limestone, creating local distinctive architecture. The abandonment of these materials and techniques, consequently led to disintegration of traditional architecture, overgrowing of arable land, and with unsolved property relations and tourism oriented economy, to cultural, ecological and economic decline.

INTRODUCTION

In history of mankind, without any restrain, stone is regarded superior to all other elements. From the beginning of stone use in Europe, some 8000 years ago, when humans in Europe made their first tools, weapons, jewellery with the material they could find just by digging the surface of the earth. Through construction of settlements, sacral structures and last resting places (burial crypts), stone was and still is one of the most important means of ascent of our civilization. In the Bronze Age, when copper and bronze tools made it possible to adapt that kind of material to human needs by further discovering its characteristics and ways of processing, the mankind started a new era.
Depending on geomorphologic particularities, various typography of vernacular architecture was born. Each one, distinctive to the given circumstances, originated from the ability of ordinary people to process local materials and create first shelters.

That is why every single structure is the testimony of human endeavour, spirit and cultural wealth. Looking at Mediterranean as a cradle of western culture, one should consider the role of limestone as a dominant force which literally carved it's *face* as we know it today.

PROJECT AREA – KORČULA

Situated in southern Adriatic as a part of mesogeomorphologic region Southern Dalmatian archipelago, the island of Korčula extends in the west-east direction with the total area of 271,48 km2, being one of the six biggest islands in Croatia. Composed mainly from rudist limestone, dolomite and marl, this island represents a very interesting geological terrain. It's favourable geographical position on the ancient main sailing route in the Adriatic, between the islands of Hvar, Vis, Mljet and Pelješac peninsula, made it opportune place for first settlers as early as in Neolithic.

Significantly mountainous island with constant alternate of heights between 300 and 500 meters resulted in steep slopes with incidence towards south and southwest of the island, but with two great fertile fields (Lumbardsko and Blatsko). Such terrain, abundant in Karst formation such as caves, enabled the flourishing of prehistoric culture. The Neolithic site *Vela*

Spilja in the vicinity of town of Vela Luka is one such great example, with archaeological findings dating 13 500 years B.C., and indication of human activity dating 20 000 years B.C.

As it can be found on other places which correlate with this Neolithic site such as *Hvar culture* (Grabčeva špilja) and *Spilja* on Pelješac, prehistoric settlers already used limestone as means of fortifying entrances of their first habitats - caves. They excavated the unprocessed stones from soil, and used it to build dry stone walls, a structure that has not been changed in its purpose and technique practically to the present day.

Nevertheless, llyrians tribes (Histri, Liburni, Japodi, Delmati, Ardidejci) that started to settle around 1000 B.C. the coastal/inland areas of Adriatic, expanded the use of limestone and dry stone techniques, to fortifying their settlements on top of the hills (*gradine*). They were building *gradine* near fertile land, overlooking important trade routes, since they were not just farmers, but also traders, warriors and corsairs. In the process of fertile land clearing and formation of pastures, the sedentary culture started to enroot following the construction piles of stones called *gomile,* that eventually became settlers' burial sites.

Cultural ties with Greeks, who colonized some of the Adriatic islands, began as early as 4th century B.C., and several ancient sites in wider area of Vela Luka indicate that colonists from nearby Greek colony of Issa (island of Vis) were settled here. This contact space enabled cultural exchange between natives and colonizers, resulting in Illyrians adopting some of the techniques of stone processing and building, using larger scale partly hewn stone blocks (Cyclops style), even polygonal ones, used by Hellenistic craftsman when fortifying towns of Stari Grad (Hvar) and Vis.

Such need led to the first larger scale extractions of stone from local quarries, especially on the small island of Vrnika. Although basic bronze/copper tools such as chisel, wedges and hammers were not found on this part of Adriatic, it is almost certain that masonry tools (and master carvers), developed by the very best craftsmen in ancient world - the Egyptians, travelled like any other commodity throughout the Mediterranean, and found its way to the Adriatic coastal area, where trading posts and larger towns had already been established.

In the case history of stonemasonry on Korčula, always scarce ancient sources have made an exception in the form of stone *stele* that was found at Koludrt hill, in historiography known as *Lumbardska psefizma*. What is regarded as the first epigraphic document can also be taken as commencement of the history of masonry on the Eastern coast of Adriatic. By carving the names of Greek colonists and the decision to proclaim the colony with division of the land

in the local reddish limestone, some unknown stonecutter unwittingly *wrote* first letters in the history of this powerful tradition that has marked the history of island of Korčula in many ways.

Although there are several examples of Greek-Illyrian style of building mainly reflected in constructions made of large Cyclops blocks, still they are too few for a broader analysis. Larger-scale use of quarries and more complex use of limestone as a building material for structures like bridges, aqueducts, *villa rustica* (capitals, columns, sculptures, etc.) began with the Roman conquest of the Eastern coast of Adriatic around 1 century B.C.

Extensive extraction of limestone to satisfy Roman Empire infrastructure demands, in some of the quarries is still visible in form of hand drilled (vertically on layers) paths called *tagliata romana* (*pašarini*), so the big blocks could be separated.

Among other antique ways of extraction, limestone was processed with V-shaped undercuts for insertions of wooden wedges, over which masons would pour water so that the wedges would gradually expand and separate stone block from stone mass. The same processes, only with use of different tools such as hydraulic drill, water cushion and other mechanical tools, are equally applied in modern stone exploitation in quarries.

Quarries in southern part of Adriatic are mostly of upper Cretaceous age, and considering organic composition – rudist limestone with some dolomite exceptions. On Korčula island, still active Humac quarry is a typical example of that morphology, while Visočani quarry in Dubrovnik area has a slightly fossilized rudist limestone. With a bright white colour with yellow patina, this limestone is highly valued and relatively easy to process.

Apart from four ancient Korčula quarries – Vrnika, Lučnjak, Sutvara and Badija, the one on the Vrnik in front of Korčula is somewhat special. In Roman times, they already knew that this limestone is slightly porous, and the easiest way to process it, was to do it underground. So, they dug out underground tunnels through which stone blocks were extracted, because underneath the surface there was more humidity and blocks of stone were saturated with stone water so they would not dry out so fast.

Since the possession of quality stone quarries literally served as a method to erect the mighty Roman Empire, quarries were of a great importance, having been often dedicated to gods (mostly Heraklo which can be seen in quarry Rasohe on the island of Brač), and under military administration. That was not just a matter of keeping quarries safe, but also a serious

logistic issue. When highly valuable commodity, such as first class limestone, was required for the construction of Emperor Diocletian's palace, the material had to be delivered in full safety from either Brač or Korčula. That is something only a skilful and organized Roman army of the time could carry out.

But after disintegration of Roman Empire the need for material gradually faded and a new fashion emerged. It was very popular to recycle roman architectural heritage, reintegrating it into new, mainly sacral structures. A great example of such reintegration, in the best twist of historical irony is the city of Split, where the palace of Emperor Diocletian - the most fearsome persecutor of Christians – was transformed into a cathedral.

Despite such monumental evidence, the period from antiquity to early Middle Ages was marked by the lack of historical sources to explore the history of this Korčula commune in detail – until the appearance of a document that shed new light on the communal life in the Middle Ages.

In an attempt to repudiate territorial ambitions of Republic of Dubrovnik and Venetian republic, away from their island which was not just rich in sense of resources, but was also situated on a strategic naval route, people of Korčula wrote the most important legal document - a *Municipal Statute* (1214). It is the oldest legal document on the Croatian soil, and the second oldest in when it comes to regulation of the laws and customs in Slavic world. This important legal act, demonstrates not only a communal legal structure, but reveals a whole insight into the life of medieval Korčula.

The data on recruitment of armed troops for defence, known as *kumpanje*, in the only five existing settlements, reveals also a number of inhabitants of the whole island, which couldn't exceed 2500 people. Most of them were tradesmen, merchants and free peasants whose social rights were represented by people's assembly and brotherhoods. The main elements of communal economy, beside tax collection, included limestone extraction and masonry, shipbuilding and trade.

The Statute of Korčula is oddly full of regulations referring to agrarian relations. Besides mentioning the large number of toponyms (mostly Illyrian-Romanic names) for fields, pastures or forests, an interesting entry of Statute shows that the grazing of livestock was the subject of legal contracts, pointing out the importance of wheat cultivation, which was besides

wine, under strong municipal control. Such a control could only be conducted with fenced pastures and fields, meaning that basic dry stone wall division were already established. Clearing the soil, fences were built from excavated limestone, and modest shelters were built. The agricultural landscape was starting to take shape.

It's curious to note that, alongside the most important medieval commodities such as salt, wine and cereal crops, every single export of local stone from the Korčula commune was under strict tax law. Every outsider who wanted to export an amount of 100 modius of stone (roman measurement 1 modius – 8.73 litres), was obligated to pay the tax in the amount of one gold coin (ducat). For comparison, that equalled the amount of obligatory annual tax imposed upon every agricultural household.

In terms of political unrest, the enthronement of bishop of Korčula in 1300, who was directly and exclusively responsible to the Pope Boniface VIII, foreshadowed a period of stagnancy. But voluntary subordination to Venetian rule by most Dalmatian communes including Korčula after 1420, and the establishment of the Episcopal centre, brought political stabilization and also a significant building momentum. Churches, city walls and fortifications were prioritized, but monumental public buildings and new type of structures - country villas - were also part of the cultural *awakening*, simultaneously marking rise of middle class and transition from Romanesque to Renaissance.

This was due to the Venetian main focus on protection of salt trade, so the commune was rather independent and unconstrained, allowing development of trade and crafts, especially stone masonry.

The prominent example of such rise of masonry craft is Andrijić family, from which several generations of exemplary stonecutters originated, whose works are scattered among Dubrovnik, Korčula, Hvar , Zadar and some Italian cities, having influenced many contemporary artists. The most prominent member of this stone masonry family was Marko Andrijić, who was appointed commune *protomaster* in his native Korčula, after a successful service performed in Dubrovnik, working on significant sites such as St. Saviour church, bridge on Pila and other public buildings.

Perhaps his exceptional talent is the most recognizable in one of significant Renaissance works - the bell tower of the St. Marcus cathedral in Korčula, which became a model for constructions of Hvar and Šibenik cathedrals.

The extraction of good quality building material was always strictly controlled by the commune. The written evidence for that can be found in a document from 1506, showing that at the peak of his career, Marko Andrijić rented the quarry of Vrnika, putting the quality of this grey-white limestone ahead of all other quarries active in that time such as Kamenjak, Sutvara and Majsan. Even the most famous medieval stone builder Nikola Firentinac was coming to the Vrnika, to personally pick limestone blocks for construction of Šibenik cathedral, masterpiece of renaissance sacral architecture. As most of Venice was built from stone extracted in Istria quarries, Split and Trogir were built out of Seget and Brač stone. Most fortifications and other public buildings in the city of Dubrovnik were built from stone extracted in Korčula, Solina and Grbača quarries, but largely from Vrnika, thanks to its pure white colour, as it can be seen on the palace of Sponza in Dubrovnik.

On the only inhabited islet of Vrnik, a guild of stonemasons - St. Matthew was established, as an association through which its members could represent their interests. In that time, there were around 30 active quarries and a contingent of 600 people, that lived and worked on this small island.

With the help of notary records established in the beginning of 14th century, it is obvious that, besides shipbuilding, stone masonry is the most widespread occupation.

Sadly, there are not many documents from Middle Ages, to obtain a wider insight in the development of stone masonry on Korčula.

The techniques of limestone extraction have not been changed since antiquity and only after Europe's industrialization, things have started to change.

Therefore, only in the end of the 19th century, more systematic education programs appeared in the form of first gymnasium, Croatian civil school and one- year courses of stone carving and shipbuilding. According to available statistics, stonemasonry courses were four times more attended than any other courses, making it still desirable and profitable occupation. By 1913 a first real professional stone carving school was opened, making the period between the two world wars the most prosperous, when the generations of great craftsmanship were educated,

through a more comprehensive program. A newly founded company at Vrnika, had 220 employees at the time and around 36 apprentices per year, so the increasing demand for quality stone material and its fitting was easily satisfied by expert stonemasons.

After WWII, certain upswing occurred due to increased architectural destruction which needed restoration, since the (semi) carved limestone and lime mortar still represented the basic building combination. In Korčula, a new stone masonry school was opened, which gave renowned Croatian artists such as Frano Kršinić, Ivo and Lujo Lozica, among others. A decade later - by 1960 - the school was closed, while modernization through collective industrialization took place, and with the inauguration of cheap and easily procurable materials, especially cement, iron armatures, tiles, asbestos and others, hewn (platy) stone became mostly a decorative element, covering steel structures and unsuccessfully mimicking traditional elements in architecture.

Actually, it marked a general decline of stone masonry tradition, which is today nourished by just a few stone masonry businesses on the island of Korčula with several active quarries.

In Korčula rural areas just a few hundred years in the past, thanks to availability of platy limestone in certain parts like the north coast of Korčula or around Žrnovo, with ease of extraction and application, platy limestone has always been an integral element of rural architecture. Surface and privately owned small quarries, like in the Postrana show case, provided much needed building material. Such architecture is rich in details even in the case of agricultural buildings, where stone slates dominate architecture in constructive and in decorative sense, but always triggered with functionality. Long traditions of stone masonry used such characteristics of platy limestone, and created modest but beautiful living spaces. From slate roofs, one of the key features of every coastal landscape, till carefully built dry stone walls, thin and easy to shape limestone was used to perfection, creating details for every part of household: eaves, gutters, pavements, scarps of cistern, chimneys, benches, tables, just to name a few.

Availability of such material on Korčula, can be traced on few sacral objects, where the use of platy limestone can be even dated. There are several churches that have preserved original roofing with the platy limestone, and some of them are built on roman foundations like Church Lady from the field (catalogue of objects) in the south western part of Blato field. The

single nave with a rectangular apse at the back has not fully retained its original appearance, so that the interior has a redesigned barrel vault with a transverse arch. The limestone slabs are used on the roof, but also as a pavement around the church. Under the front facade the floor is tiled by vertically insertion of stone slates, but it is not known exactly when this decorated surroundings occurred.

Also two beautiful examples - church of Sv. Vincent Prapratna built in the early 20th century and St. Liberan on Zdračevo in the second half of the 19th century, both of which are built by families on their land, show the apparent link between religious and secular traditional architecture.

Both churches are with simple single space volume without prominent apse, built with rough dressed stone and more regular squares. Their outfit is complete with a roof of small and irregular limestone slabs, and except for a small bell tower and plastered walls, actually they do not look as religious buildings. The interior is barrel vaulted and that's really the only difference, which in the case of Korčula again has an interesting link.

The island of Korčula is the only place on the eastern coast of Adriatic that has developed site specific structures with circular layout and a corbelled roof, known as *torete*. Beside these shelters only built around Smokvica and Lumbarda, similar shelters – *vrtujci* can be found around Vela Luka, both of them intended for humans. With circular ground plan, there are no typical features that appear on every structure.

Corbelled shelters are not just characteristic for Mediterranean, but can also be found in Middle East, Africa, England and all the way on Island. Across the western part of the Adriatic there are few such constructions, similar in format and function. Depending on their location, a different name is used; *bunje* (between Zadar and Šibenik and Brač), *trim* (quite dense around Stari grad) or *kažun* (triangle Kanfanar-Rovinj-Bale).

Functionality and techniques are generally common, but the overall availability of platy limestone in some parts of Korčula certainly encouraged in creation of this new tradition, not older than 200 years.

It is likely that this Korčula's spatial curiosity, occurred at the beginning of the 19th century, probably originated from a soldier returning from the army served in Pula (Istria), where he saw such structures called *kažuni*, and tried to copy them.

Toreta on the other hand, according to some authors, it's the work of one man only, who probably saw vaulted structures on a journey somewhere in the Mediterranean (there are such

traditions from Yemen through Morocco, especially *barraca* in Spain), and decided to build one on his own. In the case of Korčula, locally present unprocessed stone, and the availability of platy limestone incentivized such a tradition resulting in prominent shapes that are completely different from other types of vaulted structures in the Adriatic, and therefore a significant cultural brand.

PROJECT AREA - PELJEŠAC

After Istria on the north of the Adriatic sea, Pelješac with its 348 square kilometres is the second largest peninsula surrounded by Malostonski bay and Neretvanski, Mljetski i Pelješki channel. Extending in the direction of the land, from its westernmost tip to the connection to the mainland, this hilly peninsula is 65 kilometres long. The geological structure of Pelješac is dominated by Cretaceous limestone (with the western area of paleogenic limestone), dolomites and Eocene flysch, so much of the typical Karst topography is present throughout the caves, pits, hills and plateaus of the peninsula. The mountainous massif of Western Pelješac is extremely rich in Karst caves, so it isn't a surprise that just underneath the highest peak of the peninsula - Sv. Ilija (961 meters)- there are around 150 archaeological sites.

The Nakovana plateau, extending from St. Ilija to St. Ivan peak and Dube on the western part of peninsula, with its geomorphologic convenience, induced the development of first settlements, allowing them to use rich land and its resources. Such formation also provided an excellent natural protection from various invaders in centuries to come. Natural formation called *Grad* (coming from the Illyrian word *gradina* – meaning fortified town) is a stone crown measuring 350 meters with perpendicular heights of twenty meters that has been used as a lookout post overlooking nine nautical miles long Pelješac channel, one of the main ancient trade routes, and thus controlling the whole Southern Adriatic.

These first inhabitants used this naturally rounded hill, to build their defence structures in the shape of rings using dry stone wall techniques, and a building material that was easily accessible all over the place– limestone. Namely, such material had a crucial impact on the formation of first settlements, giving rise to traditional building techniques that had shaped this landscape until the second half of the 20th century.

The whole system of such fortified settlements (around thirty of them) can be traced from the town of Ston as easternmost tip of peninsula to Nakovana, as a complete spatial organization and a proof of dominant role of Illyrians and their characteristic proto-architecture.

On wider area of Nakovan plateau, the most significant archaeological site is surely *Nakovanska Spila,* as it reveals the very first traces of civilization on the peninsula, dating back to 8000 B.C.

At the entrance of cave Spila, there is a dry stone wall protecting the site from undesirable guests, something that was quite common in that period. But during excavations performed in 1999/2000, a team of archaeologists discovered an Illyrian shrine with fine Hellenistic vessels as offerings, amongst which were also found several ivory fragments with engraved zodiac symbols. At the assembly it was concluded that they were actually pieces of astrologer's board, a very rare finding and the oldest known board, dating from 100 B.C., opening a new perspective about Illyrian level of development and their role in the cultural life of Mediterranean in the early centuries of western civilization.

Ring type defensive constructions were basic and uniformed way of fortifying hills and natural elevations - a ring bastion constructed from partially dressed stone blocks and with just one access, was a simple yet effective way to defend from enemies, because siege weapons didn't exist at the time, and warriors were often barefoot, making it very difficult to fight in such conditions.

On the slopes of Grad, there are remains of habitation buildings with rectangular ground plan and water tanks, built with dry stone techniques. Such basic ground plans became the core structure of the first nearby villages - Gornja and Donja Nakovana, where people from Gradina gradually moved, after cease of pirates' attacks in the Middle Ages, making it their permanent settlement. Inside the hamlets the typology of traditional coastal architecture was born.

Tumuli – Illyrian burial mounds, also known as *gomile,* were usually placed near Gradina as a supplement to their organization of landscape. So in this area there are around 70 *gomile* where ceramic pottery, jewellery and weapons of Illyrian origin were discovered, serving as rare and valuable findings upon which the history of Illyrians can be reconstructed.

It's interesting that inside those mounds, we can find the first applied use of platy limestone. Small burial chambers for one or two deceased, were located on the north or east of the *gomile,* and were covered in platy limestone. An evidence that such material was continuously used throughout centuries, can be found further north from this area, on sites

called *petrali* – meaning small surface excavation sites, where the exploitation of platy limestone has been tradition from the first century BC until the first half of 20th century.

DONJA NAKOVANA

The villages of Gornja i Donja Nakovana are situated just alongside Pelješac main road that connects present day village of Lovište, the westernmost inhabited village, with the rest of the peninsula, and is actually the only communication way amongst villages since the first inhabitants. Thanks to nearby Kopinje hill, Nakovana hamlets are protected from strong northern winds (*bura*, *tramuntana*), and the direction of extension is north-south, resulting in favourable micro climate.

The first record of village Donja Nakovana comes from 14th century, and with a good reason. It was a well-developed settlement, and also the biggest village on the whole peninsula, probably due to its nearby fortified safe location Grad, which was used whenever necessary by Nakovana inhabitants until 18th century.

Cattle breeding was Illyrian primary economic activity, as evidenced by numerous Karst pastures, while farming goats, sheep and other animals remained a basic branch of economy. Cultivation of crops such as wheat and barley was also very much present in everyday life, so every family had its own threshing floor, where they could thresh their grain. Such life organization, has its own appropriate architecture, modest but functional, since it derived from economic activities performed by their owners.

Beginning from the external rim of the settlement, there is as a labyrinth of dry stone enclosure pathways, which were used to lead cattle on pastures. The whole area of outer rim covering an area of 2.5 acres has been interwoven with about 30 small objects (largely demolished) that were called *košare*, and served as a place to keep cattle. Every household consisted of few ground floor objects (mostly built in block) in which several generations of one family had lived, and whose architecture would be gradually expanded. Today's village of Donja Nakovana has seventeen residential buildings, and beside some smaller objects (like auxiliary kitchens), most of the objects have collapsed roofs made of platy limestone. Some of them are covered with valley tiles, a commodity that appeared widely

available in the 19th century, which gradually replaced platy limestone on roofs, especially on well-built two story houses with inside plastering.

Some objects are partially inhumed in terrain and are built following the layering of court. As a prototype of traditional housing, the rectangular ground plan (single cell) is most common, with many of the houses being extended vertically. In constructive sense, all of the objects feature gable roof with horns, except in smaller auxiliary objects with shed roof, still covered in stone slates. The slope of the roofs does not exceed 45 degrees, which is typical for settlements with coastal climate.

The wooden construction of the roof is always made in the same way, meaning that wooden ridge beam rests on two side gables, with roof rafters supported on sidewall beams. Noticeably, in this area rafters are not interwoven with crosspieces, but rafters are placed densely (every 40 cm), on which the platy limestone slates are placed. The reason for the absence of crosspieces can be justified with a size of platy limestone that could be extracted from local quarries, and for which there was no need for transverse *insurance*.

In residential area of the hamlet it is also visible that some of the objects were gradually extended on each other, presumably due to growing need of residential squares. Such annexes were built upon the same gables, achieving savings of material needed for building another gable. This type of constructions resulted in block type of housing, and spatial organization where it was possible to form small enclosures known as *dvori*. For the show case house, it has been deliberately chosen a six house complex– *U Cvtka dvori* - in the centre of Donja Nakovana hamlet, which represents traditional housing arrangement, economic and social unit, usually a property of one family.

Such small *squares* were often, as in this case, composed from storey housing with attached auxiliary/economic structures. *Dvori* were not just a focal place of social life in rural areas, but also a way for inhabitants to defend themselves from attackers in times when piracy was very common.

Nevertheless, the whole residential part of Donja Nakovana is mottled with tiled paths, using vertically inserted stone plates, forming thus sort of urbanized area, clearly separated from outbuildings, and distinguished from all other hamlets on the island.

Half of the objects are under tile roofing, and two of them have roofs that are covered with platy limestone. The largest house with two floors has four facade openings decorated not just

with eaves, but also with consoles. Openings in facade, windows and doors frames, jabs and lintels are made from carved stone.

Such architectural expressiveness with large number of carved gutters, lintels, stone window frames, roofs covered with platy limestone, threshold floors and two storey houses with carefully built bread ovens that can be found throughout the village, and with clearly separated spatial organization, is a rare case in rural settlements. The partial answer why is this village full of such a *rich* architectural decoration, can be found in the fact that people from Nakovana were, beside agriculture, also involved in maritime commerce, trading goods all over Mediterranean. Folk's traditions even remember a story, that one entire street in Istanbul was covered in platy limestone slates originating from nearby quarries, as a result of trade of limestone by Nakovana maritime traders.

But without consideration of such stories, it is obvious that people from this village were actively involved in the island's economy, not just in food production, but also as traders and boat owners.

The complex of six objects in Donja Nakovana was chosen for show case study, because of its possible reconstruction and revitalization in the form of *open air museum* or a cultural tourism attraction, which could lead to survival of this abandoned rural complex.

CONCLUSION

With such large quantity of limestone in the Adriatic coastal area and on the islands, it was relatively cheap (but very hard) to create such great amount of vernacular architecture, in a way that persisted until first half of 20th century.

From shelters to residential and sacral buildings, dry stone land division and terraces that prevent fire and erosion, traditional architecture has proven its durability and functionality over many centuries, with minimal maintenance. Discovering new and inexpensive materials, just fifty years ago, modern man very easily dismissed and forgotten this tradition.

In rural areas, it was the pure necessity to use material found in close-by, and that is a first lesson on sustainability. Such connection of people with their landscape, is clearly visible in the whole project area, whether it is small stables near the centre of Vela Luka, Pupnat

agricultural complex or hamlets on winegrowing Pelješac. Maybe the most beautiful and representative way to depict cause and consequent relationship between platy limestone and traditional building is Korčula own and specific constructions - corbelled shelters: *vrtujci* and *torete.* A significant and impressive tradition that was possible to create solely because of the availability of platy limestone.

Better quality housing construction, especially outside urban agglomerations, emerged in the 19th century along with a sudden rise of Dalmatian viticulture, but still in line with the traditional forms. The first improvements were on structure walls that were built from larger and better dressed stone blocks, which are in most cases plastered with lime mortar for better insulation and living conditions. In parallel with changes occurring inside the house structure, the outside space also transformed. As a form of consolidation of property by one family, residential storey house are built within one block forming a inner courtyard place as a centre of social interaction, and also as a kind of provisional fortification against pirates.

Nakovana hamlets on Pelješac peninsula are great examples of such prosperous period, when small single cell space objects gradually got vertical expansion. It was mainly the case of copying ground plan layout with symmetrical arrangement of facade openings. Along the edge of the village, small dry stone objects were used as auxiliary objects, while inner part received elements of urban complex, clearly distinguishing residential from working area, but with necessary communication.

Further more, in such cases of richer living conditions, inner equipment and modulation of the internal structure is common, with walls creating new spaces, fitted windows with glass, wooden elements with iron fittings (*škure*), as one of the recognizable elements on traditional facade. With these modifications of the living (outer and inner) space, there is an appearance of horticulture, especially with platy limestone in a form of fencing and paving paths and courtyards.

It is obviously that in places with developed economic opportunities almost like a rule, platy limestone is reduced to a decorative element, or a building material reserved for secondary objects such as summer kitchen (*ljetna kužina*) and wine cellar (*konobe*), bread oven (*krušna peć*), stable (*štala*), and corbelled structures (*vrtujci*, *bunje*, *torete* in Korčula).

In the vast majority of rural and especially urbanized areas, the roofs of platy limestone were replaced with barrel tiles, or in recent times with other kinds of roofing tiles. In such case, it isn‘t just the colour of the roof turn that is turned from gray to red, but also proportions are

distorted. First a roof pitch is changed. Then a stone gutter is not longer suitable, and is replaced with tin gutter which is coming on to facade, and slowly every element of traditional house is changed to some new architectural solutions, which consequently lead to misunderstanding of building traditions.

One of the most undesirable modern uses of platy limestone is covering concrete structure with hewn platy slates mimicking the vernacular in most dreadful way. Something that was part of our heritage for hundreds of years is now slowly degrading due to our collective lack of awareness of local and vernacular heritage. Capability to build such a rich traditional architecture means that our ancestors lived in modest but well organized community, which could erect such architecture to its fullness, respecting inherited elements and still keeping it sustainable and on a human scale.

Something we have all forgotten.

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