

## **WP4**

# **Platy limestone as cultural heritage**

## **Supplement 3.I**

### **Cultural heritage and limestone. – General overview**

#### **Appendix 3.I.3**

#### **Final report for the project area in Slovenia (Kras)**

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February 2015

## 1. Introduction about the project area

Under the project leadership of Geološki zavod Slovenije (Geological Survey of Slovenia) from Ljubljana, the University of Primorska, Science and Research Center, Institute for Mediterranean Heritage (Univerza na Primorskem, Znanstveno-raziskovalno središče, Inštitut za dediščino Sredozemlja) was tasked with carrying out the work within the Work Package 4 – Cultural Heritage and Limestone, a Research of Use of Platy Limestone in Cultural Heritage, as Built Material. The fieldwork work was not carried out only in the Slovenian part of Kras/Carso region, but in also other Eastern Adriatic regions, in collaboration with the related partners (see Elaborate I. General Overview).

The research area of *Elaborate I Kras* is geographically limited to the area of the so called classic Karst (*klasični Kras*), the majority of which lies in Slovenia, and partially in Italy; the whole represents the main hinterland of Caput Adriae and Gulf of Trieste. Kras extends from the Gulf of Trieste to Vipava valley on the East, the river Soča/Isonzo to the north and reaches from Brkini to Pivka on the south. It is an area lacking rivers or river currents with several clefts, abysses, water currents in the underground caves; area of desolate commons, but also of cultivated fields, forests and populated centres.



Figure 1  
Project area map of the plateau Kras/Carso.

For the Eastern Adriatic coast and its hinterland, presence of platy limestone is characteristic. In Kras, layers of stone have been gradually cleared off in order to provide cultivating land for agriculture. Pieces of land were fenced with dry walls (*meje, ograde*), made of larger stone

slates, while smaller chunks were deposited in large piles, known as *griže*, or *gomile* (mounds). This centuries-old process has created a specific karstic landscape covered with dry stone walls. Let us stress that the main architectural characteristic feature of the landscape are exactly the dry stone walls.

In the history of Caput Adriae and its hinterland limestone was the dominant building material to which Kras/Carso owes its specific appearance, characteristic features and life. It is a morphological distinctive geographical unit, where the soil, landscape, the hydrogeological conditions, productivity and human settlements are closely related to each other. Platy limestone has enabled modest, but beautiful living spaces – one of the key features of the landscape are buildings that are completely made of stone and covered with stone roofs. However, limestone was also largely used also for several details like eaves, gutters, pavements, scarps of cistern, chimneys, benches, tables, etc.

Stone buildings and several dry-wall structures have left a special mark on the Kras area ever since the Copper Age, when the incomers surrounded their settlements with large and high dry stone walls and therefore protected them. Those settlements are nowadays called *gradišče* or *kaštelir* (Guštin 2011; see also Preložnik 2012). They were generally built on top of hills and were therefore easily defendable (see p. e. hillforts by Volčji Grad, Tomaj, Sveto, Štanjel, Povir, Škocjan). The walls were circularly planned and were built of irregularly shaped stones. During this period also the first formation of the cultural landscape developed, as relatively numerous *gradišča* were built on the elevated areas – on the infertile hill and were encircled with high stone walls visible from afar.

In order to survive under adverse conditions of the otherwise wild and tough Kras landscape, the inhabitants thoroughly cleared the surroundings of single *gradišče*. The walls were constructed with stone debris and the wood was used as the building material for houses and outbuildings. Under the slopes of *gradišče* had soon arisen the pastures and fields and cultural landscape was formed.



Figure 2  
The prehistoric hill fort Volčji Grad, municipality of Komen.

The formation of the cultural landscape continued in the era of Roman Empire when a special mark was given by countless agriculturally oriented homesteads like numerous *villae rusticae* as well as coastal cities, like the nearest Tergeste (Trieste/Trst) and well-constructed traffic roads with post stations, merchant and military emporia.

Hand in hand with the arrival of Romans modest settlements in Kras/Carso were founded and consequently also quarries opened in this region. The best-known is Cava Romana in Aurisina/Nabrežina, north of Trieste.

During the Middle Ages, the existing smaller urban centres and the population of the countryside intensified. However, until the 19<sup>th</sup> century the landscape structure remained the same. In the 19<sup>th</sup> century, the landscape structure began to change due to the stimulated industrialisation, new social development, and modern traffic flows and, last but not least, due to the building of the “Southern railway” between Vienna and Trieste. Industrialisation and heavy traffic cut off the millennial tradition in the use of local building materials.



Figure 3  
View on the agglomerated settlement Vojščica (municipality of Miren), around 1917  
(Photo archive Goriški muzej, Nova Gorica).

In Kras/Carso region, stone as the original landscape element was in the limelight for centuries. Until recently, traditional stone architecture represented the prevalent and most consistent built part of the landscape. For the survival, the settlers had to create the favourable conditions for the pasture and agriculture. They had to protect the patches of the fertile soil and to dam the heavy erosion, which is characteristic for this area. In order to provide the fields and pasture, the stones had to be cleared off from the surface of the future cultural landscape, which was mostly coated with the thin layer of humus. The larger amounts of the redundant and unused stone material, collected from the future agricultural and pasture fields, was laid in numerous dry walls and even nowadays large piles (locally called *grobļe*, *grīže* and *g(r)omile*) stand aside in the landscape as the silent witnesses of the former entirely stone landscape.

Redundant stone from agricultural and pasture fields had to be stacked in layers, as disposal “on side” is useless: piles of stones or *gomila* eventually vanish and the stone return in the soil (Juvanec 2005, 4).

What nowadays gives an impression of the geometrically arranged landscape is in fact a result of the long-term work of numerous generations that had encircled with dry walls the fertile fields, gardens, olive groves, orchards, pens for cattle and pastures in sinkholes and on steep slopes.

Simultaneously with the landscaping for agriculture or livestock, the number of homesteads was increasing, main houses and smaller *hiške*, shelters or pens for cattle that were built of the larger stone blocks, which were only partially worked on the one side only.

Nowadays smaller, agglomerated settlements are characteristic of the karstic world as the water supply comes only from the common watering places – cisterns or wells (*štirna*) and built ponds (*kal*) for cattle before the entrance to the settlement. Fertile soil – although in Kras it is non-abundant – was of the key meaning for the settlement of people and the building of agglomerated settlements. The settlements were generally set in the immediate outskirts of the areas with the most fertile soil that pass over step by step in the meadows, pasture and cultivated fields (Renčelj, Lah 2008, 69).

Everyday struggle with the nature, heat and drought, cold and the harsh wind *bora*, with the close and distant enemies, has given to the inhabitants in Kras patience, endurance and flexibility. The houses, homesteads and outbuildings were built in accordance with adverse climate, nature, along with the needs and economical abilities. Stone is the material, wherefrom the soil and the cultural characteristics of Kras derive (Kamnita hiša 1984, 7).



## 2. State of the art in the research on limestone and cultural heritage in the area

There are a lot of written sources, primary literature, scholarly literature and reports about the state of the art in the research on limestone and cultural heritage in the area. The comprehensive list of bibliography is added in the supplement to the general elaborate (Elaborate I, Annex 4).

The oldest description of rural houses on Kras/Carso is *Descrizione della patria del Friuli*. It dates back to 1502-1503 and was written by Marin Sanudo il Giovane, who precisely describes the Isonzo settlements. The second document is the miscellaneous writings of Bishop Tommasini. Later, in 1689 was published *Die Ehre des Herzogthums Krain*, a comprehensive work by Janez Vajkard Valvasor.

In the last two decades of the 19<sup>th</sup> century some scholarly studies about the homesteads in rural lands of Friuli-Venezia Giulia were published. A work by Gustavo Bancalari, *L'abitazione rurale nelle Alpi meridionali* (1895), describes the Postojna-Vipava-Idrija zone. Study by Arrigo Lorenzi (*Studi sui tipi antropogeografici della pianura padana*), dating in 1914, contains two chapters about houses and settlements in eastern Friuli and Monfalcone.

In 1905-06 Matija Murko published *Per la storia della casa nazionale degli Slavi del sud* – a study about rural houses in the Slovenian territory of Friuli-Venezia Giulia.

In *Guida alla Carsia Giulia* (1929) Gustavo Cumin provides a classification of house types, distributed in the Kras/Carso area – he points out a type of the house with the roof, covered with stone slates.



Figure 4

Example of karstic architecture, around 1917 (photo archive of Goriški muzej, Nova Gorica).

In the process of reconstruction after the destruction of the World War II, the book *Obnova slovenske vasi/Reconstruction of the Slovenian village*), written in 1947 by the architect Marjan Mušič In the chapter *Primorsko-mediteranska hiša* (Mediterranean house form the Primorska region) are documented several characteristic forms of the homesteads. The author especially stresses that in Primorje and Goriška are spread "Mediterranean stone houses". Older houses had open fireplace that has gradually disappeared.

Marjan Mušič quotes the local inhabitant from the surroundings of Koper: *"Before 1800 people lived in extreme poverty, they lived in ground floor houses built of grey stone and mud. Their exterior and interior were not plastered and there was only one room with "vognišče" (fireplace). Roofs were covered with stone slates, the doors were below 180cm and the windows did not exceed 20x30cm. The ceiling was made by crooked shafts on which were layered branches and holoschoenus vulgaris."*

The house of the early 19<sup>th</sup> century was built following the same principle with one difference – it has one storey that was accessible through the stone "škale" with the outer gallery or balcony "baladur". So, the house was divided in two rooms, "kuhnja" (kitchen) in the ground floor and "kambra" (room) in the first floor.

After the year 1830 also the other ground floor houses were elevated and covered with *korci* (ceramic tiles) - resulting in a less steeper inclination (from 45 to ca.30 degrees) During the years 1860 and 1910 the houses were elevated for one floor and extended through "škale" with "baladur" and "fugoler". After the year 1918 have appeared various types of buildings (Mušič 1947, 62).

In the period of the after war renovation, the architect Rado Kregar published a monograph with the stress on the execution of construction works and with the detailed description of building elements and materials (1947). In the chapter *Škrilavi krov/Stone slate roof* the author draws attention to the stone roofing made of natural stone as well as from the natural asbestos and concrete.

Rural architecture in the eastern Adriatic coast and hinterland (also Slovenian part of Istria and Kras) has been elaborated in several overviews. Let us mention a monograph by Aleksander Freudenreich *Narod gradi na ogoljenom Krasu/The people builds on the bare karstic land*(1962), which in Yugoslavian scale treats various urban spaces/landscapes as also vernacular architecture.

In recent years the maintenance of the karstic vernacular heritage has been in the spotlight. Maintenance improved through the collaboration with local communities (especially Komen) and international projects. In the last decades of the former century several books about traditional karstic homesteads, sacral architectures and morphological analysis of different karstic villages have been published.

About the maintenance of the dry walls structures few manuals like *Kraška hiša*/Karstic house (2012), *Priročnik za suhogradnjo*/Handbook for dry stone construction (2012), *Priročnik kraške suhozidne gradnje*/Handbook for karstic drywall constructions (2014), *Priročnik za upravljanje in obnovo kulturne krajine Krasa*/Handbook for the management and restoration of the cultural landscape of Kras (2015) were recently published. Mentioned have to be also *Razvoj modela revitalizacije istrskega podeželja*/Development of a model for the revitalisation of the Istrian countryside (2012) and the proceedings *Zid na Suho/Muro a secco*/The dry wall (2014).

Some monograph works by Stanislav Renčelj, Ljubo Lah (1994, 2008) and Borut Juvanec (2012) were in recent years dedicated to the vernacular house architecture of Kras/Carso. A series of monograph works about the singular churches, stonemasons' families and other important stonecutters in Kras region was written by Božidar Premrl.

A great merit for the professional elaboration of quarries in Kras belongs to Bogdan Jurkovšek and his collaborators in the monograph *Geologija Krasa*/Geology of Kras (2014). No less thanks go to Božidar Premrl, who for the needs of Institute for Protection of Cultural Heritage in Slovenia made the first detailed list of local quarries of platy limestone in Karst (2003, 2005, etc.).



### 3. Glossary of jargon terms

During the project RoofOfRock we collected the jargon and dialectal terms about stonemasonry, quarries and stone buildings, which were or still are in use within the researched area. Most of the terms are untranslatable in English, as well as in other languages, as they describe rather specific expression, connected with stone – stone extraction, stone elaboration, stone architecture, etc.

In Annex 1 of the Elaborate I. General Overview is the whole glossary, collected from Slovenian Kras and therefore is here provided only a short list of glossary for Kras:

*anbot* – некоč, nekda  
*borjač (bərjáč)* – dvorišče  
*čefita* – podstrešje  
*dolnji hram (dulānji hrām)* – klet za vino in poljske pridelke  
*funda* – temelj  
*gnojnik* – gnojišče  
*gornji hram (gurānji hrām)* – kletni prostor za spravilo vinske posode in priprav  
*greda* – vodoravni tram; poveznik  
*grubla* – groblja; brezoblično kamenje za zidavo  
*gurenc (gurānc)* – preklada  
*hram (hrām)* – klet  
*jerta (jārta)* – del kamnitega okvirja vrat ali okna  
*jerte (jārte)* – kamniti podboji, okvirji pri oknih in vratih  
*kadenje (kādenje)* – veriga za obešanje kotla za polento  
*kalati* – črpati vodo iz vodnjaka  
*kalavnik* – vedro  
*kamen za mast* – kamnita posoda za mast  
*kamin* – dimnik  
*kapnik* – skrila na kapu; kamnit napušč nad vrati ali oknom  
*ketna (kjātna)* – veriga  
*klajderkosem (klajdārkuosām)* – predalnik  
*klanc* – poljska pot  
*kočeta (kāčejta)* – posteljica za otroka  
*kolonja (kəluānja)* – ločni porton ali porton s preklado  
*konji (kuonji)* – škarniki ostrešja  
*kope (kuape)* – korci, žlebaki  
*kopovna (kuapovna)* – kosci, razbitine korcev  
*korniš* – strešni venec  
*kosem (kuosām)* – visoka garderobna omara ...

#### 4. Limestone quarries, materials and craftsmanship

One of the main characteristics of the platy limestone is that it is easily separated from the rock and chopped to the desired size. Layered rock emerges very often on the surface and does not need expensive quarries exploitation. Thickness of the layers varies from one meter to only few millimetres.

As it is attested through the material traces and also through the written sources or oral tradition, during the 18<sup>th</sup> and 19<sup>th</sup> century were on Kras/Carso more than 400 limestone quarries. The oldest traces of the stone extraction are present, for example, in the basin of Aurisina/Nabrežina in the top portion of the walls of the “Roman Quarry” and in the nearby – now non-active – quarry.

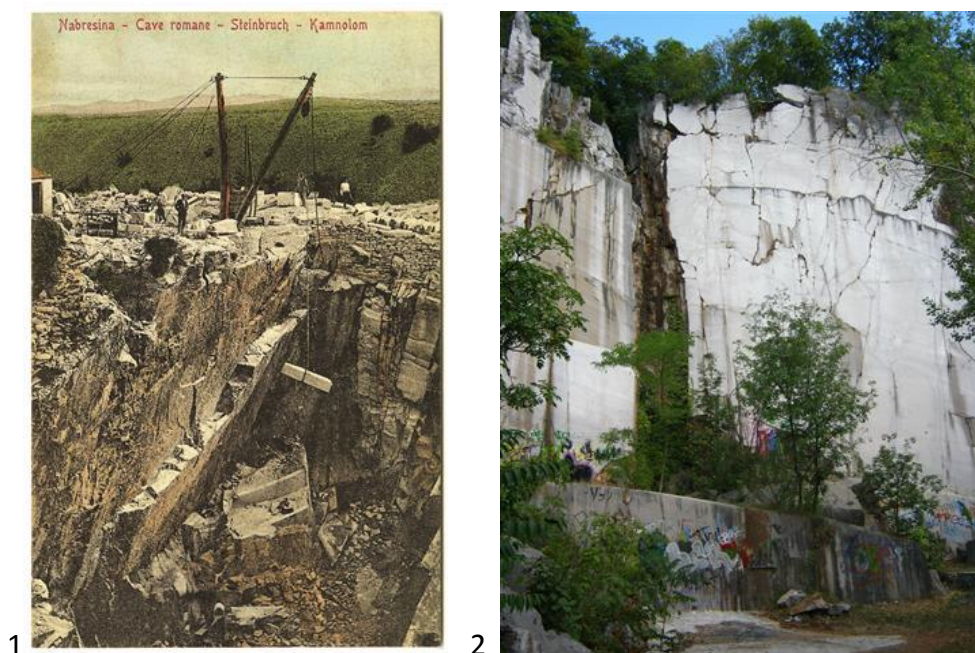


Figure 5

Well known quarries from Italian Carso: 1. Aurisina/Nabrežina quarry. Beginning of the 20<sup>th</sup> century; 2. Zolla/Col (photo Neža Čebrov Lipovec).

Smaller quantities of *skrile/škrile* were excavated all over Kras. Information and knowledge about excavations/extractions we have learnt mainly from the local oral tradition from local inhabitants, whose families have lived in that area for generations, since there are mostly no material traces left, due to the filling up, overgrowth or human activities.

One of the main uses for the stone was in the architecture, as the roof covering – for stone slates, *skrile/škrile*. In Lipovnik and on the slope of Sedovnik, in the wider area of Komen is excavated the stone, known as *komenski skrilavec*. Lithological quite similar stone blocks were

found also in the surroundings of Dutovlje, Tomaj, Dobravlje and Kazlje and in the valley of Raša.

Ever since the earliest settlements, almost the whole population was in some way involved in the process of extraction of stone. The local population has specialized in the work in quarries or in stone cutting, they have also organized themselves in several stonemasons' workshops. In this region, till the beginning of the 20<sup>th</sup> century, practically from each family at least one member was involved in one of the activities and gained one of his modest income from them.

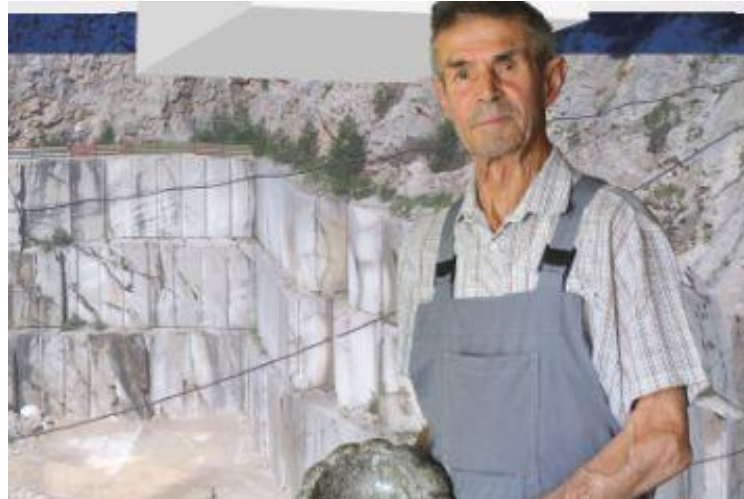


Figure 6  
Stonemason master Gabrijel Jeram from Štorje.

An important activity was of course the transport of stone, especially of the stone blocks, which originated from the larger remote quarries. The stone was transferred by carts, in which was usually yoked a pair of oxen. Presumably the peasants transferred the material for their own use by themselves, using their own small carts and yokes. For public buildings, like churches, the building material was transported by the paid drivers or by the villagers with forced labour.

The process the stone extraction has modified during the centuries. Since the second half of the 9<sup>th</sup> century the explosives and gunpowder have begun to replace the manual extraction. Since the beginning of the 10<sup>th</sup> century the workers in the quarries have used the compressed air drillers and the helical wire - that technology had been abundantly used in Kras/Carso until as late as the beginning of 1980.

Depending on the type of a quarry, of upstream or pit/well, the manner of handling the stone blocks has significantly changed. The blocks (but also waste material) were transferred through powerful lifting equipment – derrick crane. Since the last decade of the 20<sup>th</sup> century derrick crane has become indispensable in quarries, although the most modern techniques require the use of a quarry diamond wire or a diamond chain cutting machine. The new methods have allowed a yield increase and a powders decrease. Nowadays lifting of the blocks from lower quarry forecourts is enabled through powerful mechanical shovels that

have replaced the use of the derrick crane. The most significant moment for the mining activity in Kras in the 19<sup>th</sup> century is related to the construction of the Southern Railway, the line that connected Vienna with Trieste (1857). With the railway could karstic stone quickly spread all over the territory under the rule of the Austrian Empire.

According to the form and the level of their treatment, the stones are classified in several subgroups:

- field stones;
- stone quarry;
- splinted elements;
- drafts;
- dressed stone.

Regarding the nature of the materials, their form and their position in masonry walls (thickness, contact points, etc.) we differ several types of masonry:

- Totally irregular masonry;
- Irregular size masonry;
- Irregular size masonry;
- Irregular size masonry with horizontal line;
- Rownd masonry.

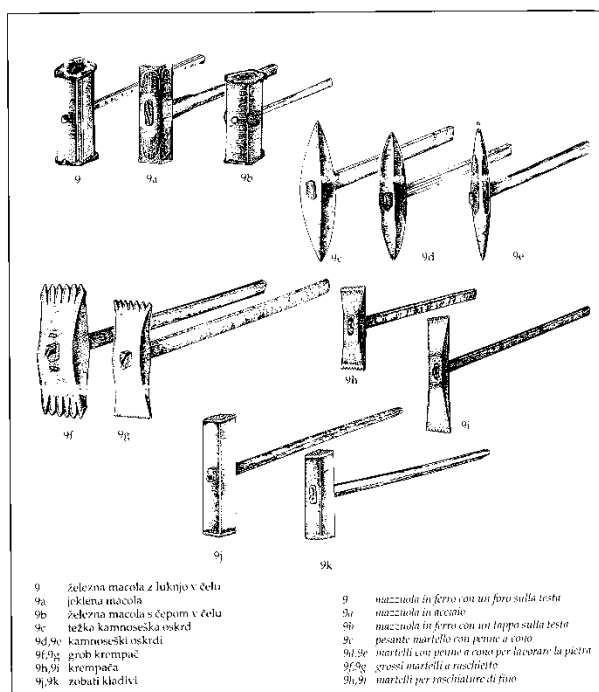


Figure 7  
Stonemasonry tools.

## 5. Main types and characteristics architecture

Deteriorated stone slates of platy limestone have been in countryside ever since the outset of the 19<sup>th</sup> century gradually replaced with new ceramic barrel tiles roof or with other kinds of tiles. Therefore the villages have lost their traditional “stone-roof panorama” architecture. A lot of houses and homesteads in Kras were destroyed during the First World War and some villages have been badly reconstructed afterwards, while a part of traditional buildings and profane architecture has forever disappeared.

The earthquakes in the 70's of the 20<sup>th</sup> century (Posočje/Isonzo valley 1976) caused huge damages and the inhabitants were forced to renew their houses fast by using new materials, techniques and also by imitating the modern contemporary architecture in urbanized areas.

The use of that sort of stone - platy limestone - for the roof slates of village churches, larger homesteads, outbuildings and modest peasants' houses is still traceable in Kras. These examples of vernacular architecture provide a good insight in the traditional use of platy limestone in the contemporary architecture.

Today, a lot of old, traditionally built rural countryside houses, especially larger homesteads, have been greatly modernized or are now abandoned and mal-preserved. The reasons for deterioration vary from the efforts of reviving the rural countryside without an economical and commercial background to the ignorance of the owners or responsible public institutions.

As the building material, the platy limestone was a common material in homesteads of Kras and for some secondary buildings, such as summer kitchen, wine cellar, bread oven, stable, and corbelled pasture structures. The flooring was mostly made of wooden boards or stone slates, or there was only soil on the pavement.

### **Villages**

Due to the traffic connections, strategic or defensive position and especially due to the conditions for agriculture (fertile soil), in rural areas gradually developed the villages and other smaller settlements with dispersed “urbanistic” structure. Especially the settlements that are more remote from the urban city centres or where the population lives mainly from the agricultural crops and livestock have often remained almost unchanged for centuries and have till nowadays preserved their medieval pattern.

Villages on the countryside have mostly developed in the areas, where the stone, in our case limestone, was present and the inhabitants were able to simply pick it from the earth or dig it from the ground. Consequently, hand in hand with the human needs, new tools and technology have emerged in the process of the work in the quarries. In the local quarry, local population was the main labour force. As a result workshops of stonemasons and stonecutters developed locally, as well as other professions that deal with stone.



Generally, the villages can be divided in two main types:

- a) villages of dispersed shape, located between the fertile parts of countryside, or
- b) villages that have the main square and from few to many farmsteads and other houses that are concentrated around the main square which represents also the village centre (Figure 8).

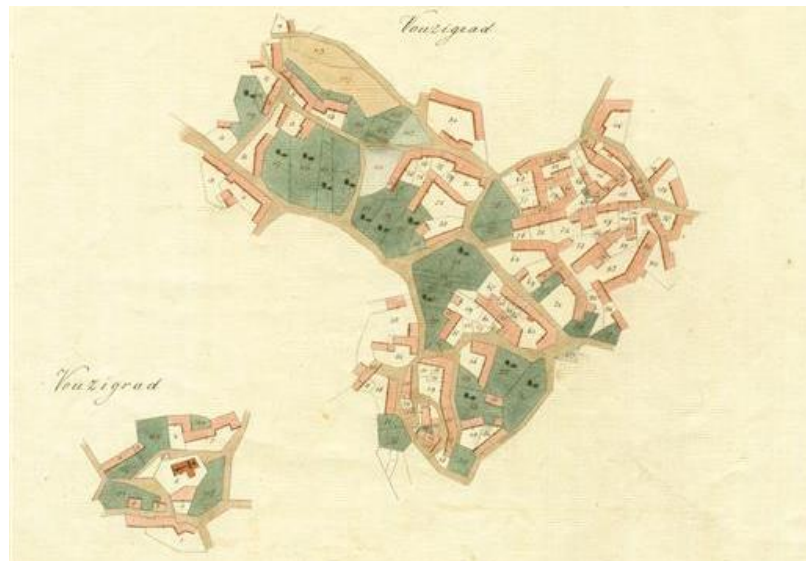


Figure 8  
Volčji Grad, Franciscan cadaster 1818.

### Churches

Ever since the end of medieval period churches have been the most important centre of the social life in urbanized towns and rural villages. They are located whether in villages or in the direct surroundings of the village. Often the church has an adjacent cemetery (Volčji Grad, Povir, Križ, Merče, ....). A great number of small churches or smaller wayside chapels in the countryside are built in remoteness, on the top of the hills.





Figure 9

Examples of the churches on Kras: 1. Povir, 2. Križ, 3. Dutovlje, 4. Merče  
(photo Mitja Guštin (1-3), Neža Čebren Lipovec (4)).

### Farmsteads

A characteristic feature in the villages of Kras is the farmstead with a courtyard, closed by high stone walls (Figure 10). In Kras, an “ideal case” of the farmstead is quite similar to the farmstead-types with closed courtyard that are found in other areas of Adriatic hinterland, where they served as the protection of the family and the herd.

Courtyard in the farmsteads in Kras can be quite huge as its dimension can exceed even several hundred square meters. Entrance to the courtyard and to the single buildings around it is stressed with an impressive stone entrance portal. The main house for the living is located on the north edge of the courtyard. The outbuildings were located to the west or southwest of the main building.



Figure 10

Kras, typical view of farmstead with *borjač* (courtyard)  
and main portal entrance in Volčji Grad no. 26.

## Houses

The houses were regularly oriented to the south or southeast; the windows are facing mainly the west or south-west and only seldom the north and south. They were built beside the fertile fields or pastures, or in the middle of them, regularly they were integrated into the villages. The buildings are mostly built following the additive principle – they have been often adapted or modernized (even within one generation), in accordance to the needs of the family. Mostly the houses were elevated with one or two stories. The roof is covered with thin stone slates of platy limestone.

Some houses have a courtyard, encircled with wall. In this type, the entrance portal has a prominent role – it is the gate which separates the private property from the public domain (cf. house in Volčji Grad, no. 26).



Figure 11  
Križ

Similar to courtyard portals are also the house portals. These lead into the interior where the common rooms are, namely the kitchen. Moreover, often we find here shallow niches, used for the storing of small supplies or candles. In the centre of the interior is an open fireplace (*ognjišče*, *kamin*) made of stone. A part of the farmsteads are also some small or big outbuildings, as barns, warehouses, pens for cattle, etc.

### »Single cell« home / a Mediterranean stone house

The main house type in Kras is a simple »single cell« home (only ground floor). It is called also a Mediterranean stone house – a stone house covered with stone roof. It is covered with gable roof, without a chimney, although earlier in the past it was covered with straw, rye sorghum and later replaced with more sustainable material - platy limestone. From that type several different types of the karstic stone architecture have developed.

That "prototype" could be later elevated with some upper floors: kitchen (in some cases the role of the kitchen was taken by the open fireplace) on the ground floor, bedrooms on the upper floor. Usually the storeys were connected with an external stone staircase and a wooden gallery that is covered with a jutting roof. Commonly, the gallery consists of two wings and is built above the external staircase. Only later a chimney was built.



House walls were built of raw or semi-worked stone and only corner stones were processed. Doors and window frames were carefully carved. The slabs were coated mainly with lime mortar and the slab surface was coated with lime wash for the stone protection.

### ***Spahnjenca***

*Spahnjenca* is a detached structure for kitchen which was added to the house at its lateral façade, as in only few cases the kitchen is located in the interior of the homesteads. It is usually without the mortar. The walls of *spahnjenca* are made of platy limestone and also the roof is covered with the slates of platy limestone.

### ***Hiška***

*Hiška* is a specific simply made structure that has developed in the Kras area as an independent storage room for the field tools and as shelter for farmers or shepherds. It is built of platy limestone, which was found nearby and picked from the ground. As a rule, it has no mortar, but is built in a dry wall technique.



Figure 12

Volčji Grad, “hiška” – farmers’ and shepherds’ shelter in Kras (photo Boštjan Štolfa).

## 6. Architectural elements and decoration

### Roof

Due to its affordability and availability platy limestone was widely used for the roof covering in sacral and profane architecture in the rural areas. In the past, the stone material was lying in the surroundings of the building or village and was therefore cheaper. However, due to the weight, the vaulted parts of the churches (dome) were covered with flat wooden roof.

The maintenance was easy - deteriorated stone slates were replaced with new of the same material, although in the 20<sup>th</sup> century “new” materials, as cement, plastic, asbestos panels etc. were used as well. However, the use of modern materials for the renovation of the traditional buildings is strongly unadvised. It is recommended that even the platy limestone for the new stone slates origins from the same quarry as the old slates. The slabs and the roofs were regularly not lathed.

A typical house in Kras is covered with gabled roof without the gutter. The traditional roofing system is very simple. On the wooden (mostly from oak) rafters are laid the stone slates, the distance between the rafters has to be quite small, around 40cm. The roofs are not lathed.



Figure 13

Volčji Grad, a traditional house with typical platy limestone roof (Photo Mitja Guštin).

Also eaves are a part of the roofing. They are regularly made of larger plates of platy limestone, although they are occasionally made also of thinner plates that are placed in several lines under the roof covering.



### **Courtyard portal**

Elaborately carved stone portal marks an entrance to the traditional rural closed courtyard (*borjač*). On its architrave are in bas-relief often chiselled the name or the initials of the owner or his family name, a year of the construction, religious symbols (like an abbreviation JHS, *agnus Dei* or a cross), vegetative motives as flowers, hearts ... Recent scientific research showed that these “vegetal motifs” were not only decorative but they actually represent symbols of pre-Christian beliefs, the survived on Kras all until mid 20<sup>th</sup> century (Čok, 2012, Hrobat Virloget in Kavrečič 2015).



Figure 14

Povir, a traditional portal to the courtyard (*borjač*) of the homestead with deteriorated roof, covered with platy limestone slates (photo Mitja Guštin)

### **House portal**

Portal of the house is quite similar to the portal to the courtyard of the homestead. Traditionally it is made of stone (although also some other materials – as wood occurred). Also on its architrave are in a bas-relief often chiselled the name or the initials of the owner, a year of the construction, and religious symbols.



Figure 15

Volčji Grad, no. 24. One of the most beautiful house portals in Kras, constructed in 1860. On its architrave are chiselled letters A.J., the initials of the stonemason and the house owner Anton Jurc (Photo Mitja Guštin).

### Balconies or galleries

The balconies or galleries are one of the main features of the larger homesteads in Kras. They have mainly served as a storage room for agricultural and farm products. From the gallery one can also walk to the rooms in the upper floors. They are oriented to the southwest and west, and are usually located against the longitudinal side of the building.



Figure 16

Repen no. 31 (IT): Photo Fabiana Pieri;  
Divača, Škrateljnova homestead (photo Mitja Guštin).

### Windows

House windows in Kras are more or less very small. The most archaic and elemental version is merely a small opening in the house, above which is an architrave that is made of wood or stone. Window frames are also made of wood or stone

### Staircase

An external staircase in several houses in Kras is made of stone or wood and is mostly linearly shaped, although (when the courtyard is too small) it can also be in the form of a letter L

(Figure 16). The steps are leading to the external gallery and from the gallery to one or more rooms in the upper floors. In opposite to external staircase, the inner staircase plays only a marginal role.

### **Flooring**

The ground floor of the traditionally built houses in Kras consists of large irregularly shaped stone blocks that are laid directly on the clay and covered with wooden boards. Contrary, the flooring of the stories is made only of wooden boards.

The limestone slabs in Kras are used for the pavement, especially around the churches.

### **Water supply, cistern, *kal***

Due to the lack of water the water supply in Kras was of the great importance. In order to provide the water, the inhabitants built ponds (*kal*), cisterns, or dug the fountains. The *kal* were situated beside an entrance to the village, so the cattle, sheep or goats could be given the water before they were going to the pasture or when returning in the pens.

The cisterns are situated either in the village centre or near the houses and are usually made of platy limestone. They collected the water that runs from the roofs through the stone gutters (Figure 17: 1).

Several public cisterns are still preserved in the villages, a case like that is an example from Tupeče (Fig. 17: 2). On the public cisterns is often carved an inscription.



Figure 17  
1. Štanjel, 2. Tupelče (photo Mitja Guštin).

### **Dovecotes**

Between the architectural elements on the façades are often visible small niches, which were built as the habitat for domestic pigeons – dovecot.

## 7. Catalogue of documented objects

Within the project RoofOfRock five historic buildings were thoroughly documented and presented as show-cases. In order to provide a detailed description, which could be helpful also for future research of the architectural heritage, detailed description sheets were filled. Enclosed were also the photo material, architectural plans, ground plans, outlines, historic photos, etc...

The description sheets of the selected show cases are enclosed in Annex III of the Elaborate I. General Overview.

The selected show cases are: St. Eliah Church in Kopriva, Assumption Church in Gura, Plešivica pri Povirju ("Gura pri Povirju"), Assumption Church in Šmarje pri Sežani, Škrateljnova domačija (Škrateljnova homestead) in Divača, homestead Pri Blaževih in Gorenje pri Divači.

Beside the selected show cases also 40 representative objects were documented that are either entirely or partially made of platy limestone. The data and observations from the field work were inserted in the description sheets that are at disposal in the List of documented objects.

Documented were: 1 building from Gorenje pri Divači, 3 from Povir, 1 from Merče, 2 from Šmarje pri Sežani, 3 from Križ pri Sežani, 4 from Štanjel, 1 from Lokev, 2 from Žirje, 1 from Tomaj, 2 from Dutovlje, 2 from Skopo, 2 from Kopriva, 1 from Tupelče, 1 from Volčji grad, 3 from Divača, 1 from Škocjan, 3 from Vrhovlje, 2 from Voglje, 4 from Kazlje, 1 from Filipčje Brdo.

## 8. Literature

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