CULTURE AND NATURE: THE EUROPEAN HERITAGE OF SHEEP FARMING AND PASTORAL LIFE

# RESEARCH THEME 2: ARCHITECTURE

# SYNTHESIS RESEARCH REPORT

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**PRISMA**

**JANUARY 2012**

The CANEPAL project is co-funded by the European Commission, Directorate General Education and Culture, CULTURE 2007-2013.Project no: 508090-CU-1-2010-1-HU-CULTURE-VOL11

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# 1. INTRODUCTION

Rural architecture is without doubt one of the most important parts of our heritage. Although its value has not been recognised until the second half of the 20th century, and it is still neglected in many parts of Europe, rural architecture remains a living proof of the identity and quality of the rural landscape. Indeed, the great diversity of "architectural landscapes" is revealing the long history of European agricultural heritage, enhancing the beauty, identity and quality of rural landscapes. Today we accept that every building from a most humble cottage to an ornate village church can be an important part of rural architecture creating the identity of a landscape or a region (Fister, 2011).

Rural architecture in Europe has a regional character, with typical housing styles. The Mediterranean area contains reminiscences of the heritage of classic Greek and Roman periods. In central and northern regions we can distinguish alpine, Baltic, central European, Gallic, Germanic, Slavic, Nordic and similar regional styles of rural heritage (Encyclopaedia of Vernacular Architecture of the World, 1997). However, within each of these regions, a great richness of architectural variety exists, while common elements can be also frequently traced among the different regions. A common characteristic of rural architecture across Europe is also the creativity of the spontaneous design, the inventiveness of construction techniques and materials and the intelligent use of space. Pastoral architecture constitutes a significant part of rural architecture, and more specifically of farm architecture, demonstrating all these features as noted above.

Four factors seem to have influenced the development and shape of pastoral architecture in Europe: the historical development of sheep farming in each country; the type of pastoral economy; the local materials; and the climate.

## 1.1 Historical development of sheep farming

The historical development presents some significant differences between European countries as well as common trends. We can distinguish between countries that have a long tradition in widespread sheep farming, stretching from ancient or medieval times till today, like Greece, France and UK; and countries in which sheep farming was never a predominant economic activity, complementing rather than prevailing over other forms of animal husbandry (e.g. Estonia, Poland). For example:

In **Greece**: in ancient times, sheep and shepherds were inextricably tied to the mythology and the legends of the time, sometimes illustrating the history of the expeditions into far lands (the Argonaut Expedition), and other times tied to didactic stories (Aesop's tale of the little shepherd). Sheep breeding comprised an important part of the ancient Greek economy as testified by Homer and Hesiod. During the Byzantine years sheep farming became widespread in the whole expanse of the Byzantine Empire

in contrast to the Central European regions which turned more to other livestock. Greece today is the third biggest sheep producer in Europe and has the highest ratio of sheep per hectare of all European countries.

In **UK:** even in Bronze Age times sheep were widespread and took a role equal to that of pigs and cattle, while later on they were the dominant animal. In Roman times Britain was famous for producing high quality woollen products. At the time of the Norman Conquest in 1066 and the Domesday survey that soon followed, sheep were recorded as the dominant farm animal by far and they continued to be so for the next several centuries, while the earliest existing farm buildings in England date from the 12$^{th}$ century and 13th century. UK today has the highest sheep production in Europe.

In **Poland:** in the regions of Podhale and the Polish Tatras the important period for sheep farming started at the turn of the 15$^{th}$ century under the influence of Vlach-Russian migrations and Vlach settlement. During that time sheep farming reached its peak and pastoralism bloomed, creating also some of its most characteristic examples of architecture. After the main Vlach wave was over in the 17$^{th}$ century, sheep farming started to decline gradually, till it disappeared in the 1970s.

In **Estonia:** sheep have been bred in Estonia for a long time, but they have never been the most important animals in the Estonian farms. This fact is also reflected in barn architecture, where cattle barns and stables prevail, while sheep occupied a corner of such structures.

### 1.2. Types of pastoral economy

The type of pastoral economy is also a strong component that distinguishes between the European countries and is reflected in pastoral architecture: in particular, whether the economy was based on movement between summer and winter, reflecting the extent to which the shepherds' communities were nomadic, semi-nomadic or permanently settled in one place. The light and temporary structures that we come across in Greece, Bulgaria and France reflect the nomadism or semi-nomadism of pastoral economy along transhumance routes, while in other countries, such as the UK, such phenomena have not evolved, and the permanent location of the shepherds dominates the architecture of their structures

In **Greece, France, Bulgaria:** the pastoral economy developed along the main transhumance routes and at their ends. Nomadism and semi nomadism created the need for light and easily constructed structures, which were re-built every few years; while in cases where the routes were stabilized and their ends established, more permanent structures developed.

In the **UK,** in contrast, sheep farming was associated at an early period with monks (the Cistercian abbeys) and later with the feuds and sheep belonged to the big landlords who hired shepherds to tend them. The sheep breeds and the quality of the pastures allowed the sheep to stay in the same place throughout the year, so that transhumance movement was not necessary.

### 1.3. Local materials

The availability and use of materials have determined to a large extent the diversity of architectural forms and sealed the style and form they have taken in different countries. The similarities we come across the different European countries as well as the differences in pastoral buildings, are more due to the type of construction materials used that any of the other factors. A principal distinction emerges between timber/reed/straw and stone built structures. Although the two materials often co-exist, in countries like Greece, France and U.K stone prevails; while in countries like Poland, Estonia, Hungary and Bulgaria timber and straw is more prominent. For example:

In **Greece** and **France**, the round structures built of dry stone, which are also met in Italy, are ubiquitous and typify the pastoral landscape; while in **UK**, the stone built structures are also ubiquitous but tend to be square or oblong, and larger.

In **Poland, Estonia** and **Hungary** the timber hut is typical and although the shapes tend to change slightly between countries, the basic form is determined by the material and the craftsmanship that is related to timber, especially building with poles and planks.

In **Greece** and **Bulgaria** the straw hut, which combines reed, timber poles and various twigs has given many examples of ingenious architecture, although such examples cannot be seen on their true location anymore, because the short life of the materials does not allow these structures to be preserved for long periods of time.

### 1.4. Climate

The climate dictates agriculture and animal husbandry more generally and pastoral architecture is bound to reflect the climatic conditions of a region. In general, the warmer southern countries, where transhumance movements between summer and winter as well as outdoor activity have been the norm, developed many of the farm activities in the open air and in enclosures which contained light or small scale buildings. In contrast, in the UK throughout northern Europe, climatic conditions meant that farming processes, which elsewhere were carried on out of doors, took place within buildings, like barns. However, the climate alone was never the determining factor, and we can find numerous similarities in the architectural styles of southern and northern countries, reflecting the construction materials, the type of pastoral economy and the volume and development of sheep farming in the country.

## 2. TYPOLOGY OF PASTORAL STRUCTURES

Two predominant types of pastoral structures are permanent structures and temporary ones. The main difference between the two types lies in the building materials. The functions of the pastoral buildings are also an important factor in determining their types. If we combine type of materials with the function and length of the building's use, we can derive a typology which distinguishes between continuous use of buildings and temporary use of them and defines different types according to hard and light materials, different functions, forms and shapes. The following types emerge from the review:

### 2.1 Farmhouses in settlements or farmsteads

All European societies have been mainly agricultural till the 19th century, when manufacturing started to gain ground as an economic activity and industrialisation changed the economy, the landscape and the shape of buildings. Even in the first half of the 20th century, many European countries preserved their mainly agricultural character, and sheep farming continued to be a traditional activity which was carried out in traditional farmsteads. Most of the agricultural heritage related to sheep farming that has been preserved today originates from the 18th, 19th and 20th centuries, with some exceptions of stone built structures that due to the qualities of their materials have been preserved for many centuries, although often in a state of neglect.

In **Greece** traditionally farming was organised in small family farms, keeping a small number of animals principally for satisfying the household's needs in milk products, wool and meat. This combined with the small sizes of land plots has influenced the traditional architecture in the rural areas. The older types of buildings would have to cater for the needs of the family and their livestock as well, although they were positioned inside a village. The simplest type of building consisted of one rectangular building separated in two parts, one containing the family, resting area, cooking facilities etc, and one part for the keeping of the animals, foodstuff and their produce. As income and household size increased, dwelling types changed as well, with the addition of another floor which then became the family residence while the lower floor was reserved for the animals and the produce. With time this dual function of the dwelling, which provided shelter for both the family and the animals was abandoned, and in the second half of the 20th century flocks were always kept outside villages in sheep pens. Often, these structures are stone-built, incorporating a large range of functions, from cheese-making to milking the ewes to storing the feed. The evolution of these sheep pens are the modern sheep farming units which are designed according to statutory standards of hygiene and animal welfare, being more or less modest structures.

A typical example of the combined family residence and animal shelter; is "makrinari", common in many mountainous villages of the Peloponnese, dating from the 1800s when skilled builders form the village of Laggadia were employed for the construction of houses, churches and bridges. Makrinari is a narrow rectangular building of a compact and austere shape with an entrance always at the longer side and it can be either a single-storey building (monospito) or a two-storey one, separating the two main functions in different floors. A later version of makrinari includes a basement, "katoi", with an independent entrance where the livestock live, foodstuffs are stored and milk is temporarily kept until it is sold or consumed. The two upper floors "anoi" are the living quarters of the family, providing more comfort than in previous versions of makrinari.

*Various views of Makrinari, Greece*

*Village house with animal shelter at ground floor, Greece*

Built outside villages, farmsteads for sheep farming are called “mandra”, typical of Greece and other countries, where the same name is used (e.g. mandrie in Corsica, France, mandri in Bulgaria). In Greece, mandra consists of a large fenced area and a number of buildings of varied sizes and functions, usually built by drystone masonry in an irregular layout, indicating that they are built gradually over time, accommodating the needs of the shepherd as they increased or changed.. The changes and additions over time in the shape of the fence and the size and combination of buildings give a particular charm to the architectural outcome. The mandra in the island of Lemnos are unique examples of farmsteads which also include rooms for the shepherd’s residence and for carrying our various production tasks.

*Mandra in Lemnos island, Greece*

In the **UK** sheep breeding buildings and architecture can be divided into lowland and upland farm types, of which there are classes of traditional combined farmhouses and barns, separate farmhouses and outbuildings, buildings in fields, other traditional structures, informal structures and purpose built sheds and barns.

Upland sheep farmsteads where sheep are the main animals raised consist of a single house and barn combination or a grouping of several buildings, some connected and some detached from the house. Usually the buildings are constructed from stone quarried locally and only roughly dressed, if at all. In western areas, especially where slate is prevalent, the roof may also be of stone or slate while in eastern areas pantiles are more common – often replacing the original thatched roofs in older buildings.

*A typical farmstead in the English lake district, UK*

The connected linear house-barn-byre complex is a development from the early houses where people lived in one end and animals the other of a single building. It evolved to be subdivided as people became better off and there might still be a connecting door between the house and the byre or barn so that is unnecessary to go outside in winter to milk the cows or to feed them and muck them out (to remove the manure). A farmhouse or cottage design which dates back to mediaeval times but is now rather rare is the so-called “cruck” house – the roof is built on beams that stand on the ground and form a triangle of A-frame, cut from the same tree and split to create matching shapes. The lower walls were made of stone and the gables infilled with wattle and daub (woven sticks and clay plaster) with a thatched roof of one storey.

*A reconstructed early Welsh farmhouse of the longhouse type with 15th and 18th century elements, now at St Fagan’s Museum near Cardiff, UK*

*A cruck house originally from the early 18th century and now at Ryedale Folk Museum in Yorkshire, UK*

In the Scottish highlands where sheep farming was introduced following the clearances it was more typical for the large estates to employ a shepherd and to provide him and his family with a cottage. Many of these are extremely isolated, although the most isolated are usually uninhabited nowadays. There were no other buildings and all the work was carried out outdoors in enclosures known as “fanks” The cottages follow the traditional so-called “but and ben” layout which is two rooms either side of a front door, originally the simple function of one room for people and another for animals, modernised into two rooms for the shepherd – a living kitchen and a bedroom. Sometime these were a little bigger with a scullery to the rear. In crofting areas the houses started out as typical simple cottages of stone and thatch with either no or small windows (the former are known as blackhouses). These have been rebuilt into somewhat better but still small structures.

*An example of a well built stone and slate shepherd’s cottage near Broughton in the Scottish Borders I*

*A historic example of a croft house from the Isle of Lewis*

In **France** the former Nice County bears witness to a wealth of shapes among which the habitable barns of the Moyenne Tinée prevail. They combine on three levels a stable then a sheepfold on the middle level and then a hay storage area and a bedroom on the upper level. The roof covering is made of planks with two steep slopes. Formerly, it was made of thatch or wooden tiles. In low and medium altitudes, winter sheepfolds were built near places where dwellings are grouped together. The stone walls make long narrow buildings where the sheepfold as such is vaulted and has a loft space above it where the hay is stored.

South of the Massif Central, there are lands that have been walked over by flocks for thousands of years. The most representative sheep-related structures are the **jasses**, forming part of winter farms or built on summer pastureland as standing alone buildings. Jasses are sometimes forming part of large medieval estates where extensive sheep farming was carried out. These buildings had a long rectangular shape (which sometimes measure 30m by 5 m), with no upper level, made of schistic and gneiss masonry walls, the openings of which are surrounded by blocks of carefully cut sandstone. In the Grands Causses, the *jasses* are always made of limestone, with heavy flat tile roofs resting upon stone vaults. In the winter *jasses*, a floor delimiting an upper level is placed upon wooden beams built into the vault to allow storage of hay whereas

in the summer *jasses*, they do not have one. Water, rare on this karstic hill country, is taken from the roof by putting stones at the foot of the gutter walls which channel it to a buried tank.

*jasse of the Grands Causses, France*

*jas (Vaucluse) France*

In the Ventoux and the Albion plain, near the Alpes-de-Haute-Provence: the **jas**, is a large sheepfold with rectangular floor plans, built in dry stones or cut stones. In the Valensole plateau, part of the ground floor was kept for the sheep in a multi-functional building. This barn-sheepfold-stable with masonry walls of pebbles, joined a stable to a sheepfold, the roof of which was made of oak and/or walnut. The hay was usually stored on the upper level. One of the more remarkable features of the sheepfolds was their unique central pillar or central set of pillars of 90cm square. The pillar upheld the roof frame of the building which supported a two slope roof made of curved tiles.

In the Saône-et-Loire, an example of Burgundian architecture demonstrates a simple rectangular form with very clean lines, brings it, surprisingly close to modern design. A high vault, with a broken nave, supports a flat roof. A hay barn probably occupied the upper part of the building**.**

*Sheep barn at Joncy Bourgogne, France*

### 2.2 Field barns, cabins and dairies

#### 2.2.1 Stone built rectangular structures

A common feature of sheep farming architecture, which is found across Europe, are field barns used to shelter sheep and other productive activities related to sheep farming or cabins providing shelter to the shepherds and their cheese making activities, as well as storage.

In the **UK,** in the Yorkshire Dales it is common to see stone-built barns with stone slab roofs set in the fields which are enclosed by drystone walls. These bars are two storied, with space for animals – especially hogs - to be kept indoors below and hay storage above. There are usually vertical piercings in the walls of the upper floor to allow breezes to blow and keep the hay dry and fresh. These enable animals to be fed all across the landscape and do not require the hay to be led into one central farmstead. They are seldom used for this purpose nowadays since hay is baled by large machines and cannot be stored in these small structures any more. There are also smaller, single storied barns to be found. The barns are constructed of mortared stone which is not dressed apart from the stones used for corners and around doors which may be squared off. Normally those built from limestone show smaller sized stones while the millstone grit or sandstone examples have larger stones and better dressed corners and door frames.

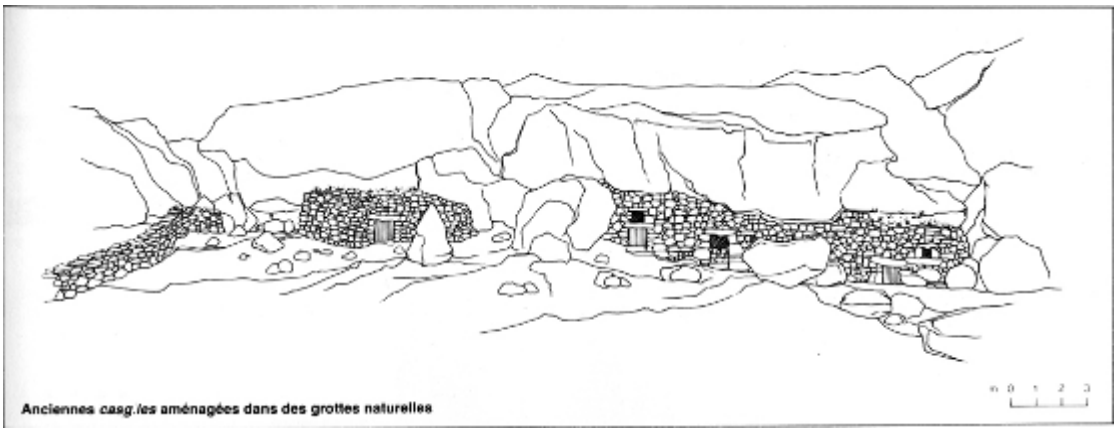
*An example of a two- storied stone barn in the Yorkshire Dales. Note the ventilation slots in the upper walls, UK*

*An example of a small single-storey barn in the Yorkshire Dales, UK*

**In France,** in the Basque and Béarn mountains the *cayolar* or *cujala* is the cabin where the shepherd lives. It is adjacent to the enclosure for milking where the ewes are kept in the evening, since the Béarn and Basque countries practice sheep rearing for cheese production. The shepherds used to make cheese in the same room where they lived. A salting room, the place where the cheese was left to ripen, was often an additional room of the hut, unless it was made up of a separate small building which could be covered with grass clumps. The cujala or cayolar is usually an isolated building; the only cases where they can be part of a group of buildings, very disparate (the distance between them can be two or three hundred metres) are situated in the high altitude plateaux (e.g. the Anéou/Aneu plateau).

*Cayolar or cujala, Pyrénées atlantiques, France*

In Corsica, the shepherds' buildings in high ground used the possibilities provided by the dry stone to make complex summer sites. Low walls separate and define different functional spaces: the *chjostra*, the sheep enclosure, next to the milking corridor or even other enclosures which are reserved for goats and which are called *mandrie*. In hilly landscapes natural cavities in the rock were used to establish cheese cellars, the casgili with façades closed by walls with low doors A simple sleeping place and possibly a small room for cooking are included. The building opens onto a yard surrounded by low walls.




*Casgili, Corsica, France*

In the eastern plain, close to the sea, the pastoral groups of buildings have a rather different look. Linked to very large grazing lands, small groups of buildings are spread out including the dwelling for the shepherds and cheese-making facility. A room is laid out in an excavation in clay dug into the slope of the land. The internal walls are made up of logs into which are woven strands of heather. A stone wall is added to the cheese-making room. The exterior wall of the dwelling is a simple weaving of heather branches whereas that of the cheese-making room is made of stone. The roof has three slopes, two on the sides and one at the back, with a gentle pitch. The house has a central fire.

In **Poland**, stone huts, called kolibas were typical of the Tatra Mountains. Images of stone kolibas, among others near Czarny Staw Gąsienicowy, in Hala pod Mnichem, in Morskie Oko, in the Five Polish Ponds valley, in the Waksmundzka valley, in the Kościeliska valley are familiar features of the Tatra landscape. There is a large diversity

of architectural forms in these kolibas, but they all share a one-room horizontal plan, no windows, while very different roof constructions were applied – using at the end of the 19th century a system with rafters. The stone kolibas of the Tatras are unique, since, except for the Beskid Mały they do not occur anywhere else in the whole Carpathian range. Those huts that included a variety of functions, such as residential and production-related, were called bacówkas.

*The hut – bacówka. Dolina Pięciu Stawów (Poland, Tatry)*

In **Greece,** a mandra was not always part of a multi-functional complex that resembled a farmstead (as presented in chapter 2.1 above). More often a mandra was a single building standing alone in a plain or a mountain slope, built to gather the sheep and provide shelter in conjunction with a yard (sheep pen). The countryside in mainland Greece and in the islands is full of such buildings of various sizes, most of which are single-space stone buildings with a double-pitched tiled roof or, in our days, covered by zinc or corrugated asbestos sheets. Some of these buildings include a second room, positioned in an L shape, to use for milk storage and as a dairy.

*Mandra in the countryside of Lemnos, Greece*

In **Bulgaria** stone buildings related to sheep farming, standing alone in pastures in the Bulgarian part of the Rhodope mountains were usually rectangular, one-room structures which accommodated milk-processing facilities and living space for the shepherd during the dairying period. The “living space” in fact was a spot near the door, with a broad plank-bed for the night and a chest – *rákla* or a shelf – *sergèn* to keep

dishes, vessels, food supplies and bread. Next to it was the hearth where the big cauldron for cooking curds and warming up the milk was placed and where the everyday meal was prepared. Behind the "living-space" – lengthwise, was the room for milk-processing. Its characteristic feature was the big wooden table for making the cheese. In a special furrow coated with wood the barrels for stirring the milk were placed. The wall along which stayed the barrels was constructed with broad gaps between the beams – to leave free space for the levers of the churns. Various selves were provided for placing utensils and the finished or ripening products.

*Dairy in the Central Rhodopes, Smolyan region, Bulgaria*

In higher areas in the mountains the animals were tended in winter in solid stone buildings with two floors, called *kolibi* ("huts"). The second floor was a barn for keeping hay and fodder and underneath was the stable or horse-pen where horses, mules and cows were tended, as well as sheep. In case sheep were much more in number, the farmer constructed for them a separate pen. On the second floor was also the room of the shepherd/ herdsman, as well as a small closet for keeping utensils and food supplies.

### 2.2.2 Round structures with dome

Such stone built structures were used during the summer mostly by shepherds for storage and shelter, as well as for other productive activities.

In **Greece**, domed structures are found in many regions, bearing different names. In Magnesia, and in other parts of mainland Greece they are called "tholoi" (meaning domes), in northern Greece they are called "calyves" or "petrokalyves" (stonehuts) and in Crete they are known as "mitata". There are several types of dome construction: spherical-wedged, parabolic, cone-shaped. A large number of these constructions have an age of two hundred years or more and many are still standing in good condition. They are built by the drystone technique and merge into the surrounding landscape both in terms of colour and texture. In Crete, the structure is partly sunken into the ground and the dome is often covered by earth, thus assuring coolness in the summer. The functions of these domed structures vary from place to place, although cheese-making and cheese storage are central uses, as well as providing temporary residence for the shepherd or simply shelter from the heat, the cold and the rain.


*Tholoi in Magnesia, Central Greece*


Mitata in Mount. Pseloritis, Crete, Greece

In **France**, domes are also typical of the sheep farming landscape. Associated with the sheep trails (transhumance routes) but also present near farms, the famous dry-stone cabins are spread throughout the *causses* although their presence is not continuous and is found in varying densities. Their body is usually cylindrical, the upper part, often trunk-shaped, conical or bell-shaped, mostly rests upon a corbelled vault, sometimes on a supported vault when their original function is for “caselles” i.e. shepherds’ shelters. Some, more spacious, present in the Limogne *causse* and as far as the eastern part of the Tarn-et-Garonne were used for groups of ten to fifteen ewes. They are therefore *jasses* of a very different kind than that of the *causses* of the Aveyron. Similar buildings are the gariotes, simple open shelters, which allowed the shepherds somewhere to withdraw to.

*Dry-stone caselle (Causses) France*

*Gariote (Causses) France*

### 2.2.3 Wooden constructions

Wooden structures typify the pastoral architecture in Poland, Estonia and Bulgaria more than stone constructions, probably due to the wide availability of timber in these countries and the speed and ease of this type of construction compared to stone building.

In **Poland** log huts were built in the Tatra Mountains, resembling largely the stone kolibas in their plan and shape. Two types of huts can be distinguished, low-log huts (existing only in the Western Tatras, e.g. the Kościeliska and the Lejowa valleys) and high-log ones (existing in all the Tatras). The roofing was made of branches and then mainly drenice (boards) and more seldom shingle. The walls were made of circular thicker perches, usually no moss was put between beams, or sometimes they used dried moss. The primary wooden huts, regardless of their function, usually had walls made of round logs with “tooth space”, because this techinque did not require high carpentry skills.

*Huts – bacówka in Hala Gąsienicowa and Jamy (Poland, Tatry)*

“High mountain” and “middle mountain” types display their own characteristics. The high mountain type includes mainly “*huts which occur individually, primitively built of boards and rocks, built of round low logs, one-room or separated with a partition wall into a*

*cheese production facility and a chamber, with an open gabled skylight roof in the end wall made of boards, with an entrance in the end wall*". The medium mountain huts present a great diversity, being usually positioned in a clearing with low grass and thus they stood out in the landscape being a clearly visible part of it.

*The "middle mountain" hut – bacówka. Polana Jaworzynka (Poland, Tatry)*

*The "high mountain" hut – bacówka. Polana Podokólne (Poland, Spisz)*

Sheep were never very important in **Estonia** and were historically considered to be the "women's animals" and not valued as much as cows or horses. A very old tradition, recorded since the 18th century in Eastern Saaremaa and Muhu was to keep sheep in saunas. Toward the end of the 19th century, sheep started to be held in corners of cattle barns and this became very common in the 20th century in Southern and Eastern Estonia. Sheep barns in Western and Northern Estonia and on the islands were built under the same roof with the cattle barn and pigsty and with the hay storeroom. Sauna and sheep barns were also combined in Eastern Saaremaa and in Muhu as far back as the 17th century; while sheep barns were built under the same roof with threshing barns in Western Saaremaa. Less often, a separate barn was erected for sheep and this occurred mostly in Western Estonia and on the islands, where the sheep population was bigger. Proper barn structures were sometimes built on pastures as well. All barns were wooden structures erected on a stone base, which in certain occasions was raised up to level of the fence which surrounded the pen.

*Summer sheep barns on a pasture.*

*Võiküla. Muhu island, Estonia*

In **Bulgaria**, timber was also very frequently used in sheep-farming structures, especially in the shelters of sheep, for either summer or winter; and for the summer houses of shepherds and the summer diaries. The dairy was built solely from whole logs with a dovetail construction. The building material was conifer timber, cut *in situ* and coarsely processed. The dairies in the Rhodopes were often covered with large barks or boards and sometimes – with small thin chopped boards In case of good maintenance and regular annual repairs these dairies could be used for several years.

*Dairies in the central Rhodopes, Bulgaria*

The winter shelter was facing south and turned its back to the cold local winds. The rear pitch of the roof rested upon the ground or on a low stone foundation. The front pitch was laid upon a construction of short pillars overhanging above the ground just to let the sheep move in and out. In case of bitter cold, the shelter could be completely closed in front with portable panels of plaited branches. The arched plan prevented draughts inside the shelter. Both sides of the shelter were closed in order to keep it warmer. It was separated inside in sections for the ewes and the lambs –space for sheep, space for goats, etc. Goats were kept in the warmest space along the inner wall of the shelter, while sheep stayed in the front side – closer to the opening because they could easily bear the cold.

*"Closed" winter sheepfold Berkovitsa region, Western Stara planina; and interior, Bulgaria*

In Hungary, shepherds often built huts for themselves by placing two plank-walls against each other to form a pitched roof. The most typical buildings of the shepherds in the highlands were the cheese houses (esztena, komárnyik etc.) in which the sheep-milk was processed, and the cheeses were ripen and stored. There, the most important equipments

of the shepherds were kept: sajtnyomó krinta (table for pressing the cheese), cseber (bucket), sajtprés (chees-press), sajtpolc (cheese-shelf) etc. A cooking-stove was also there to heat the whey and to produce the secondary dairy products.

In the Mezőség area in Transylvania dismountable and movable esztena were built from planks. Cheese-houses made of fir timber were used in the manorial sheep-farms of the mountains as well, as for example in the northern parts of the Heves county, but this type of shelter was totally unknown among the peasantry.

*Sheperd's hut in Romania/Transylvania/Borșa (Kolozsborsa) Date: 1942*

*Milking-fold (esztena) in Romania/Transylvania/Borșa (Kolozsborsa)*

*Sheperd's hut in Bács-Kiskun Homokmégy Hungary Date: 1969*

Wooden sheep barns can be also found in the Mediterranean countries, especially in areas where the availability of timber made this type of construction more economic.
In **France**, in the Gascony Plains, a typical sheep barn is the **parc,** a rectangular building made of wooden frames with the supporting pillars being placed upon stone blocks which stand out slightly from the floor. In some cases the lower part of the building is made of stone masonry or of a mixture of stone, bricks, tiles etc. The walls are made of planks.


*Parc (Landes) France*


*Borde (Landes) France*

Different from the *parc*, the ***borde*** has a steeply sloping roof initially covered with thatch

of rye, heather or water plants, e.g. reeds for the ones which were situated close to large lakes near the coast, of grasses growing on the dunes for those established on the coast. The term "borde" covers actually very different types of buildings which are characterized by the type of their roofs. The simplest model and the most common one is a single-storey rectangular sheepfold, built with a wooden frame and wood boarded exterior and covered by a three-slope roof similar to the roof of the *parc*. In another type, the two-slope roof extends down to the ground and hides the exterior walls.

Wooden structures made of oak planks and covered by a slated roof are found in northern **Greece** and are used by both the permanently settled shepherds and the semi-nomads (Karamanes 2011). Typical of these structures is the hut, called "prováta", a relatively small building used as a shelter for the flock during the winter. Today the term prováta is used for larger structures as well, which include a storeroom for hay beside the space for keeping the sheep.

### 2.2.4 Portable cabins

Mobile shepherds' cabins are also a common feature in several countries, e.g. in Bulgaria, France and Hungary. Their basic function was to provide shelter and bed for the shepherd.

In **Bulgaria,** their dimensions were determined by the function – to shelter one bed or plank-bed. There were no windows – just a door. The portable cabins were made of wooden boards or plaited staffs plastered with clay or mud and the roof was covered with straw or boards. These cabins were put on a sledge or cart, they had 2 or 4 wheels or handles to be moved over hurdles.

*Portable shepherds' cabin on sled, Rudartsi vill., Sofia region, early XX c., Bulgaria*

*Portable shepherds' cabins with handles, Borika vill., Ihtiman region, Vakarelski Hr., 1943 Bulgaria*

*Portable shepherds' cabin on wheels, Krapets vill., Vratsa region, Nikolov N., 1930s Bulgaria*

In **Hungary,** mostly in Transylvania, as already mentioned, dismountable and transferable "esztena" (cheese-houses or milking huts), built from planks, were typical of shepherds' shelter, moving on sled runners, which was also commonly used in the Balkan Peninsula. The role of this mobile hut was to protect the food and clothes of the shepherd. Due to its size only the shepherd could fit inside. When the shepherds moved from place to place, the hut was pulled by buffalos.

*"Esztena" (milking pen) on wheels in Romania/Transylvania/Borșa (Kolozsborsa)*

In **France**, mobile huts were common in Bauce, mounted on three wheels. which the shepherd could move by attaching it to one or two animals. It had a door and one or two small openings to allow the shepherd to watch over the flock. Over time, they increased in surface and comfort but they thus became less mobile since they were heavier.


*Three-wheeled mobile cabin (Beauce) France*


*Old post card of a mobile cabin (Beauce) France*

In the **UK**, at lambing time it was also possible to use a movable hut – one mounted on wheels – and to tow it to the lambing place so that the shepherd could sleep there and also keep himself and some lambs warm if need be (if a new born lamb gets hypothermia on a cold wet night it quickly dies and warming them up indoors is a common practice still, even with infra red or other heat lamps available. Such huts also contained the various tools needed by the shepherd.

*An example of a moveable shepherd's hut now at the Ryedale Folk Museum in Yorkshire, UK*

### 2.2.5 Straw huts

Straw huts are closely related to transhumance animal husbandry in the Balkan countries and along the Mediterranean. Especially in the Mediterranean area, since antiquity, large flocks of sheep and goats would not stay in the same territory during both winter and summer. During the winter, the flocks needed to be taken to lowlands, where a mild climate predominated, while during the summer the high temperatures made their transfer to upland pastures necessary. Testimonials from the 11$^{th}$ century reveal that all nomadic shepherds were already know in **Greece** and referred to as Vlachs (named after the ethnic community of Armano-Vlachs) or later, in texts of the 18$^{th}$ century, they are referred to as Vlacho-shepherds. Extensive sheep farming (i.e. occupying large areas and being the opposite of intensive) was termed "vlachiko" and was considered to be much more than an occupation; rather, it denoted a lifestyle, a worldview and a code of common values that regulated social and economic life with equal terms for all. In **Bulgaria**, the Vlachs are known as Aromanians or Kutsovlasi or Vlasi or gramosteani. Vlachs are associated with part-nomadism mostly, having established themselves in permanent settlements for the winter period and moving to higher grounds only during the summer months. It should be noted that the Vlachs form also part of the **Polish** sheep farming history in the Podhale.

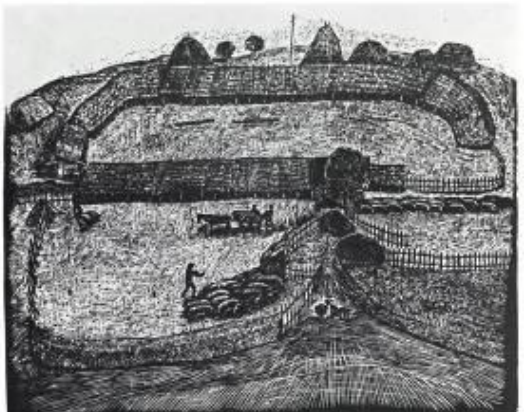
Another distinct group of shepherds are the Sarakatsani, who led an entirely nomadic life, as they did not possess any property and did not therefore have a permanent settlement either in winter or summer months. Although initially concentrated in north-western Greece and the mountains of Pindos, during the 18$^{th}$ and 19$^{th}$ centuries they dispersed widely to many other areas, such as northern Greece (Thrace and central-eastern Greek Macedonia), in Thessaly, Sterea Ellada, and in the islands of Evia and Crete, as well as in Bulgaria, where they were known as Karakachani. Despite their dispersion, Sarakatsani maintained their cultural cohesion and cultural identity till the present days, when most of them have abandoned shepherding and have been integrated in rural and urban settlements.

The structures used by nomad shepherds to protect their flocks and themselves were simple, easy to set up and wisely insulated against extreme heat or cold, using

spontaneously the basic principles of bio-climatic construction.

The huts constructed by Sarakatsani and partly by Vlachs or Aromanians are reminiscent of primitive huts in many other parts of the planet. The structural and morphological sameness of these huts with pre-historic residences is a common finding of researchers. Made of tree branches, twigs, straw and clay, they are bio-climatic, sturdy and easily constructed. Sarakatsani moved as communities, termed “tselingato” which consisted of one or more extended families (even as many as 15) forming a viable economic unit. These families constructed several huts to house their members and carry out complementary economic activities, such as cheese-making or weaving, so that a constellation of closely located huts was created, neighbouring the sheepfold.

*Small-scale model of tselingato in the Sarakatsani Museum of Serres, Northern Greece*



*Mihail Nikolov, “Kâshlá”, linotip, 1970, illustration of the pastoral complexes on the winter grazing lands of transhumant shepherds, Bulgaria*

There are two types of Sarakatsani hut in **Greece**: a) the round hut with cone-shaped dome, which was used for residence (ortho konaki), as an auxiliary space (”halatzouka”) or for sheltering animals (“mandri” or “tsirkos”; and b) the rectangular hut, with pitched roof, used for storage, to keep the animals, for cheese-making or as a school for the children “dipla kalyvi”.

*Reconstructed Sarakatsan huts in the Gyftopedi plateau, Epirus, Greece (konaki and dipla kalyvi)*

Sarakatsani huts are a rare example of spontaneous architecture demonstrating a successful relationship between construction method, morphology and economy of design.

To build the hut, the outline (round or oblong) was traced on the ground, the central wooden poles were then fixed and the horizontal links positioned, and then the frame was covered with rushes, straw, rye, twigs and other natural materials, creating a thick thatch. Although the building method was very simple and plain, the result was sturdy and watertight, providing good insulation from the heat of the summer. However, the huts had to be rebuilt every three to four years, as the natural materials were worn it.

*Dancing in a winter stani of Sarakatsani, Paramithia, Epirus, Greece, 1955*

*Women building a konaki, Mitsikeli Mountain, Greece, 1922*

The main residential hut, konaki, had a hearth placed in its middle (parastria or vatra), various selves called “krevataries” built around the perimeter to accommodate the clothes, the blankets, the food of the family and the kitchen utensils, all in separate compartments. The kervataries were constructed by weaving twigs and reeds, resting on top of mud-built mantels (Karali, 2008). An outdoor hearth was often built next to the hut, called “gounia”. The huts were traditionally constructed by the women of the Sarakatsan community. The fences of the compound were also constructed by “woven” branches, poles and straw, creating with the various round and rectangular huts a harmonious complex which sustains a dialectical relationship with the surrounding vegetation and mountain forms.

In **Bulgaria**, the Sarakatsani huts are very similar to those in Greece, as can be expected, given that the Bulgarian group is an offshoot of the Greek community, and the Greek language is largely used by them. The winter settlements of Sarakatsani in Bulgaria are also similar to those of Aromanians: i.e they have a round or rectangular plan and a light construction of poles, covered with reed or thick layer of straw. The round huts had a conical shape with a thin sharp top and a cross at the top showing their religious and cultural identity. The enclosures for the sheep were made of reed or thorns on the winter pastures, with inner fences for the ewes and the lambs, for milking the *tsangali*, etc. The constructions for the sheep on the winter pastures were with single-pitched or double-pitched roofs, with arched or circular plan, enclosing a large yard – *kotar*. The sheepfold was fenced in front with a high fence of thorns and poles. During the time of migration Aromanians and Sarakatsani moved with their entire families and the whole household and mobile property. They rested at night in light tents made of thick woolen waterproof rugs woven of goats’ wool. Fire was kindled in front of the tent. The luggage was kept in a smaller separate tent. Similar tents were used by the

Sarakatsani in Greece.


*Tents of Aroumanians during the travels to winter pastures, early XX c., Bulgaria*

*Tents of Sarakatsani, near Ioannina, Epirus, Greece*

The summer residences of Sarakatsani in Bulgaria are different to those of Aromanians. The latter built houses in their summer settlements made of logs and chiseled boards and were much steadier than their winter residences. These houses consisted of a single room without windows, were covered by a double-pitched roof and had a central hearth and a chimney. A diary was also constructed close to the enclosure used for milking the sheep but away from the shepherds' houses. The construction of diaries was similar to that of the houses. Sarakatsani, in contrast, built their summer settlements in the same way as their brother-community in Greece did, i.e. erecting round huts for residence and rectangular huts for productive functions (diaries, animal shelter, storage)on the same model and using similar materials as the konaki and kalyvi.

*A Sarakatsani summer settlement: dwelling huts, dairy and milking enclosure, Vitosha mountain, 1954, Bulgaria*


*An Aroumanians' dairy, Osogovo mountain, Bulgaria*

Straw or reed huts have been also built in **Hungary**, to provide shelter for the shepherd and his animals during the summer. On the Great Plain and in the Northern Hungarian Mountains, shepherds built straw and mud huts next to the sheepfolds on the summer pastures. The roof was held by props on the shorter sides; the sides of the hut were filled with dung, weed, brushwood and straw and then covered with earth. Reed was the primary building material in the Great Plain, where a special technique was developed to make the structure steady and safe, which implied the flattening of the sheaves of reed to achieve 5-10 cm thick pieces, digging them into the ground and tying them with flexible twigs.

A typical nomadic building in the Hortobágy (protected area in Eastern Hungary) was the "vasaló" (cooking-pen). It was a round hut, made of reed; its walls were leaning inward and had no roof. Usually it had a door and its purpose was to protect the fire and to provide a place where the shepherd could cook. Above the fire there was a pot-hanger, on which the stew-pot was hung. Simple forms of the vasaló could be found everywhere on the Hortobágy, where there wasn't enough space for a fireplace in the shepherd's hut.

*Sheepfold, Transylvania, Bádok, Hungary, 1941*

*The "vasaló" (cooking-pen) in the Hortobágy (protected area in Eastern Hungary)*

## 3. ENCLOSURES

Enclosures are important features of pastoral architecture. They contain the sheepfold or sheep pen functions of the farm, where sheep concentrate to be milked or simply stay in control during the summer. Enclosures are defined by fences, which are a typical feature of may pastoral landscapes. We can distinguish three general types of fences: those made of stone, using the drystone masonry technique, which are found mostly in the Mediterranean but also in northern European countries; those made of wooden poles that may be linked together with tree or bush branches, or in more contemporary version with metal wire or mesh; and the movable enclosures that can be transposed from place to place, usually for manuring.

In **Greece**, sheep enclosures take various names: they are called "greki" in northern Greece, meaning in particular the open space where the animals sleep during thesummer; or "korda", the open space where the animals are kept while

waiting to be milked (Karamanes, 2011). They are fenced usually with stone walls, most often built of drystone. A combination of wooden or metal poles and mesh are also used in contemporary farms.

*Drystone fence enclosing a sheep pen, Lemnos, Greece*

*Typical drystone wall of a sheep pen, Kythnos, 2013*

In the **UK** sheep folds (or fanks as they are called in Scotland) range from simple circular or square structures by themselves in an open landscape to larger complexes with dipping pens and means of separating elements of the flock. Drystone walling construction is often favoured as it uses local materials off the site and requires no other materials such as mortar.

*A very old sheep fank of a mc Camster in Caithness,*

*Drystone walls and fold in Yorkshire, UK*

Drystone walling is a special craft. Extensive walling affects the entire landscape while the detail of the construction has a beauty of its own. The selection of stones and the assembly to form a strong and long lasting wall which will nevertheless move and settle to some degree without collapsing needs great skill and craftsmanship. Each type of stone is different and produces different textures and colours in the wall.

**In Estonia t**he historically most abundant sheep fences are litter, rail and stone fences, nowadays mainly net and electric fences. One, two as well as threefold sheep fences are used, in protection against wolves also fourfold electric fences. On pastures farther away from houses fences are supplied with power from solar cells. As sheep always like to spend time on the beach during warm days, and establishing pastures right next to the sea also takes care of the drinking needs of sheep, it is necessary in shallow beaches to create net fences several tens of metres into the sea. Such fences are called water fences. In autumn the water fences are collected, to prevent winter ice from breaking them.

*Building a sheep fence (litter fence) on a brushy alvar, Estonia*

*Rail fences in use even today, Estonia*

In Saaremaa a lot of military materials are used for fence-building that have been left behind by Soviet era military bases and which local people have brought to their homes and skilfully put into use. To protect sheep, it is also useful to put the waste generated from bush removal into use. The fence is thick and able to contain the animals, if it is renewed every year.

Stone fences are very common in Western Estonia and on the islands. Stone fences were mainly used to prevent the movement of animals to certain areas, clean the surface from rocks, pile rocks or mark the border between farms, fields or pastures. Nowadays we value stone fences also for the fact that they are a habitat for many species. Thanks to the subsidies for restoring stone fences, hundreds of metres of stone walls have been preserved.

*A restored stone fence with gates in Saaremaa, Estonia*

*Fencing of collection pens, Estonia*

In **Hungary**, the most typical enclosure for sheep breeding in the Carpathian basin is the uncovered square shaped or multi-angular movable "juhkarám" (sheep-pen), which has many different names in the region. Its most common form is about 3-5 meters long and 1-1.2 meters high. The fence is built from poles, laths or planks, earlier woven from wickers, although one can find fences made from sticks, and fences which are anchored in the ground (non- movable).

*Sheep pen in Romania/Transylvania/Mountains at Gyimes Date: 2010*

## 4. CONTEMPORARY FARM BUILDINGS

Today, the needs of sheep farming have changed and the scale of exploitation has also increased, so that contemporary sheep farms have developed their own forms, functions and models of exploitation, based on intensification of production. The resulting structures are often lacking in aesthetics and have a low interaction with the landscape, although such installations certainly are more efficient, use modern technology and respect the hygiene rules more effectively than older structures.

The mechanisation of agriculture and the availability of dried animal feed changed the pattern of sheep farming after the 2nd world war. However, in many regions of Europe the traditional semi-nomadic pattern is still alive, although in a modern version with much less discomfort, for two reasons: firstly, because taking the animals up in the mountains during the summer where they can graze freely ensures a cut in costs; and secondly because the quality of milk and meat improves drastically by grazing natural grass.

In contemporary **Greece**, shepherds' huts and sheepfolds are still evident in upland areas outside the villages, adopting more or less the same principles of the older temporary huts, but using different materials; while the main installations of the sheep farm are usually modern buildings with mechanised milking facilities and refrigerators for keeping the milk, as well as large lattice-floored rooms for the flock, built and kept according to hygienic standards set by the Ministry of Agriculture and the big dairies.

Contemporary sheepcotes and sheds for keeping the sheep are made with materials that are cheap, easily provided and preferably re-used. Timber, corrugated iron or zinc, chipboard panels as well as branches, twigs, straw and other materials are put together in unpredicted combinations. Such structures have been denounced by many as "polluting" aesthetically the countryside; while for others, they are characterised by archetypal values, reflecting primitive, unpretentious aesthetics and being accepted as "specimen of decline and deprivation" for their face value

*Contemporary sheep farm in Kalpaki, Epirus, Greece*

*Winter shed for the sheep in Dolo, Epirus, Greece*

In the **UK,** from the 1950s until the 1980s corrugated asbestos was very popular for all kinds of buildings and this marked the birth of the industrialised farm building or ubiquitous shed. These were mainly white in colour, this being the natural colour of asbestos cement. Large white buildings stood out in the landscape as being very different from the vernacular materials, although they weathered as dust, soot and vegetation grown such as moss and lichens toned them down. Once asbestos was banned for new buildings other materials became available, such as profile steel or Onduline and these also come in a wider range of colours. The then Ministry of Agriculture, Fisheries and Food (MAFF) in the 1980s developed guidance on new farm buildings in terms of how to fit them into a site, what colours to use and what proportions and roof pitches would be appropriate. Dull dark greens, browns, reddish browns and slate greys were selected, with base walls of blockwork or timber infill and upper parts of walls and roofs in profile sheet.



*A range of modern buildings in Derbyshire, England, made of concrete block lower walls, timber upper walls and dull grey-green profile material roofs, UK*

In **Estonia**, few sheep barns are built today. Some farmers have invested in contemporary tunnel barns, which are imported from England or Finland. During the Soviet period, sheep were mainly kept in insulated barns, while nowadays so-called cold barns are used, where sheep have a year-long access to pastures or an to an open free-movement area.

*The most modern sheep barn in Estonia*

*The interior of a contemporary sheep barn, Estonia*

In **Bulgaria**, during the mid-20th century a new type of solid buildings became popular, called *sayá, plèvnya etc.* They were erected both in the yard in the village and in the fields. They were firm buildings with two floors, providing room for the animals and for storage of hay and fodder.

*A modern solid winter sheep-pen in the region of Teteven, Bulgaria*

*Modern dairy in Staro selo, Bulgaria*

In the period of socialism and particularly after the 50-ies of XX c. the architecture of pastoral buildings and facilities endured great changes and modernization. Many new solid buildings were erected – sheepfolds for the animals, dairies, shepherds' houses, haylofts for storage of fodder, silage pits for fresh green forage. Modern facilities were distinguished for their modern inner organization, interior, furnishing, equipment and functions. The sheep-farms in the newly created cooperative farms and the dairies were

consequently supplied with electricity and integrated to public infrastructure. Their communication with the settlements and the lowlands were improved. Many of the processes and the activities in sheep breeding were mechanized. Modern equipment was introduced – for shearing, milking, milk-processing, breeding, etc. The new dairies were solid facilities with cement floors and troughs, with zinc cauldrons and tanks, equipped with modern measurement, producing and control installations.

In **France** and **Hungary** the contemporary sheep barns do not differ significantly from similar structures in other European countries, given that their function and equipment are the same. In general they are simple buildings, covered by timber roofs and featuring prefabricated walls made of industrial materials, without much attention paid to their aesthetics. In some cases we find more permanent structures, built with bricks and covered by pitched roofs laid with ceramic tiles or synthetic sheets.

*Sheep farm of René Fourcade Gère-Bélesten, Ossau Valley, France*

*Sheepfold for the winter merino transhumant flocks in Provence, France*

*Modern sheep-cote, Photo: Sándor Aranyos, 2011*

*Solar cell on the wall of the winter sheep-cote built together with a house; Transylvania, Kápolnásfalu / Căpâlnita*

## 5. BUILDINGS ASSOCIATED WITH THE PRODUCTS OF SHEEP

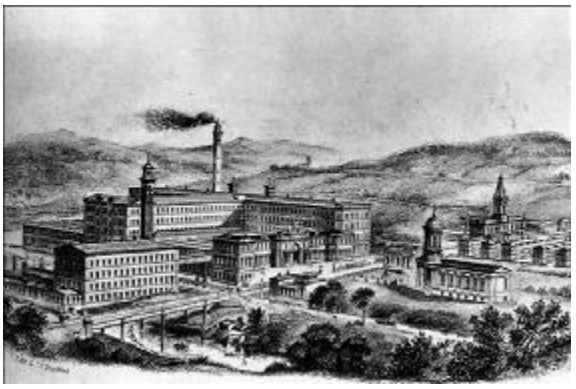
### 5.1 Woollen mills and weavers' cottages

Once the wool left the farm it was processed in different places. Before the industrialisation of woollen spinning and weaving much work was carried out in cottages, some of which were several storeys high and had especially large windows to let the light in so the weavers could see what they were doing. These date from the 17-18th centuries before the large factories took over.

*A set of three-storied weavers' cottages from Rawtenstall, with distinctive windows set close together, UK*

*Weavers cottages in Newton, Powys, Wales, UK*

The larger woollen mills have mainly disappeared but there are some fine examples of them remaining, for example around Bradford in Yorkshire, where the massive scale and bold architecture are anything but purely utilitarian. The town of Saltaire built by the manufacturer and Tityus salt was a model town of mills, houses and recreation facilities.



*An early view of Saltaire near Bradford, UK*

*Whetley Mills, Manningham, near Bradford in Yorkshire, UK*

Smaller water powered mills could be found in other places, some also surviving such as

Rock Mill (melin Wlan) Capel Dewi, Wales. In Scotland in the Borders wool production still carries on although to a reduced level and there are also many interesting mills.

*The water powered woollen mill at Capel Dewi, UK*

*Buccleuch mills, Hawick, Scottish borders, UK*

**5.2 Fulling mills**

In traditional sheep farming the wool and skin of sheep and goats have been important products which were either processed by the shepherd's family or sold to skilled craftsmen. Wool was usually processed by the women, turned into fibres with a spindle and then woven in looms. Woven rugs and blankets were then taken to water mills to be swirled in the water wells of the mill, the "nerotrivi", and thus become soft and fluffy. Flour mills are even today offering their wells for cleaning and restoring woven rugs and similar items, been considered as one of the most effective and environment-friendly way for laundering woollen items, given that no soap or detergent is used, but cleaning is achieved by the power of the swirling water. Traditional water mills were stone built rectangular structures, including an external or internal well which recycled the water that powered the turning of millstones. The wells themselves were also stone built, and were multiplied in big mills to satisfy the demand of the surrounding villages for washing their woollens.

*Restored fulling mill, Epirus, Greece*

*Traditional fulling mill, Serres, Greece*

*Traditional fulling mill, Bulgaria*

### 5.3 Tanneries

Skin, especially goat skin, was traditionally a precious product which was turned to fine leather in tanneries. Tanneries tended to gather together, isolated as much as possible at the edge of settlements, because of the strong smell that leaked out of them, which was quite disturbing for surrounding residences. In the islands of North Aegean the tanning industry was flourishing at the end of the 19th century and the beginning of the 20th, using the seawater to soften and treat the skin. The tanneries are stone built complexes with

outstanding architecture that merits preservation. Tanneries have been also a significant craft industry in Bulgaria.

*Tanneries in Karlovasi, Samos, Greece*

*Renovated tannery (1873) Tabahana,Sevlievo, Gabrovo region, Bulgaria. Deep pits in the yard, containing the vats of grout, in which the skins were soaked.*

## 6. CONCLUSIONS

Traditional pastoral architecture has been varied and versatile, original and European at the same time, sharing the values and tradition of rural architecture more generally. The construction of building that are related to sheep farming is inventive, revealing a deep knowledge of the possibilities of natural material, and is adapted to local climatic conditions in an intelligent way. At the same time it demonstrates elegance and harmony with their surroundings through simple forms and the natural chromatic range of the materials used.

***Typical examples of vernacular architecture.*** The permanent pastoral structures consist of buildings that follow the style, construction methods and materials of the vernacular architecture that is prevalent in each region. They form either parts of a settlement (a village or a constellation of farms or crafts workshops) or they belong to farmsteads or stand alone in plains and mountains. The latter are modest buildings of a surprising variety in form and construction methods presenting the qualities of spontaneous vernacular architecture, e.g. simplicity and elegance of single buildings based on their strict functionality and economy of design and materials. Stone built barns in the UK, in Greece and France are typical examples of vernacular architecture, which has been applied to buildings of sheep-farming uses.

***Landscape features.*** Field barns and other isolated buildings and enclosures play an important role as landscape features. Drystone structures in particular, create their own distinctive aesthetics as they blend beautifully in all types of landscape chromatically and

as forms and shapes. Drystone round structures carry a special importance as examples of a tradition that dates from antiquity and reflect a common Mediterranean history in Greece, Italy and France. Drystone fences that define sheep enclosures have been also used across Europe, where the availability of stone could be assured (e.g. in the UK). These are important architectural elements that define the landscape with their winding or terraced forms.

***Models of survival***. Straw and reed huts reflect a building technique that also dates from pre-historic times and provides models of survival, wise use of natural materials (mostly branches of trees and bushes, straw and clay), ingenious water and heat insulation methods and unique aesthetic outcomes. Although the most typical examples of these huts are found in the Balkan and Mediterranean countries, especially Greece and Bulgaria, and are linked to nomadic sheep farming, similar constructions are also met in other countries, such as Hungary and Estonia. These huts reflect highly developed skills, often possessed exclusively by women, that were passed on from generation to generation within the shepherds'' communities, assuring the survival and welfare of the nomadic community.

***Wise use of local materials.*** Many of the pastoral structures were made of natural materials such as stone, clay, mud-bricks, branches, poles, straw, twigs, reed and wood according to the availability of such materials in or around the construction site. The use of these materials revealed a deep knowledge of their qualities, strength and limits. Clever solutions to achieve insulation from heat, cold and water were also demonstrated, using the local wisdom that finds smart solutions to dealing with the climatic conditions of the particular region (islandic, mountainous etc). Many of the constructions in the Balkan and eastern-northern European a countries were light and mobile, being adapted both to the availability of local building materials and to the lifestyle of the shepherds who either lived a nomadic life, moving from place to place; or moved from their village to summer pastures for a few months.

***Intelligent ecological solutions.*** Intelligent solutions for recovering valuable resources, such as water can be also found in abundance. Water is collected from pitched roofs either with simple means, such as tanks or with more complicated methods which involve underground structures. Typical of such methods is the example of the jass in the Grands Causses in France, where water, rare on this karstic hill country, is taken from the roof by putting stones at the foot of the gutter walls which channel it to a buried tank. Clay-dug structures in France and Bulgaria are also examples of intelligent solutions in locations where other materials are scarce, while minimum effort is required and the maximum of insulation for weather conditions is achieved.

***Inventiveness.*** The way the building materials are combined and interwoven, especially in light structures, and manner in which the internal functions are outlayed to save space and achieve the maximum utilisation of space, as well as the details of special features of buildings that assure ventilation and preservation of food, reveal the inventiveness of

the builders. The straw huts of the Sarakatsani in Greece and Bulgaria and the straw and timber huts and sheds in most other countries offer examples of ingenuity of construction and great inventiveness allowing the structures to fit their functions they serve, their environment and also to be rebuilt in a different location easily and with speed.

***Contemporary perceptions.*** Modern buildings use industrially produced standard materials and lack the fit into the landscape of the older forms, although they are much more economic and practical. Contemporary shepherd's huts and sheds are often made by the juxtaposition of light industrially produced sheets, such as zink or asbestos, or even by recycled or scrap materials, combined with the traditional reed, planks, tree branches and straw to produce a rather controversial aesthetic result that is not always pleasing to the eye. This result is however unique and carries certain advantages leading architects and visual artists to argue that these examples of contemporary spontaneous architecture are authentic, inventive and do not offend their environment, meriting more serious consideration because of their originality and clever use of cheap materials that come to hand, on the same principles as older, traditional structures did.

**The need for preservation of the pastoral architecture heritage.** Traditional pastoral architecture forms part of rural architecture and shares the same value: it is original and European at the same time. As Fister (2001) put it: "*If we are to sustain and extend our interest in the countryside and in our rural architectural heritage and if we are to build upon it, we must also protect a common recognition of the past*".

It is obvious that a preservation policy for rural architecture is necessary across Europe, to ensure that pastoral architecture and the lessons we can learn from it will take their right place in the European heritage. However, we should not forget that the objective of any preservation policy must be to preserve the character of these buildings, and the values they represent, and at the same time generate sufficient resources for their repair and maintenance (Sell, 1988).

It has been sadly recognised across Europe that traditional farm building are neglected, although a large number of them would merit preservation. John Sell lists three reasons why during the post-war II period the rural architectural heritage was neglected: "*first because it was generally easier to use new technologies in new buildings, second, because years of neglect and lack of maintenance during the depression made repair seem prohibitively expensive and, third, because high productivity through the more intensive use of labour means that there are no longer workers with spare time available to carry out the regular tasks of maintenance and repair".*

There is a question why so few buildings that belong in the European architectural heritage of farming have been preserved. In most cases, private owners cannot afford the repairs unless these buildings can be reused and public ownership is only affordable for a small number of buildings of great importance. The market economy has in some

places begun to provide its own solution, by pointing to the benefits of re-using these buildings for cultural, tourism, housing or other purposes. However this is scantly and unevenly applied across Europe: it does happen widely in some countries (e.g. in the UK), but it is very rare in other countries (e.g. the Mediterranean countries and eastern Europe).

## 7. LITERATURE

### General

Encyclopaedia of Vernacular Architecture of the World, Cambridge Press, 1997

Fister, P. **"**Rural built architecture in Europe" in Naturopa, No 95, *European rural heritage*", pp. 10-11, 2001.

Sell, J. "Traditional farm buildings: heritage or resource" in *Architectural heritage and rural development, Architectural Heritage Reports and Studies*, No. 11, pp. 36-39, Council of Europe, Strasbourg 1988

### Greece

Aikaterinidis G (Αικατερινίδης Γ κ.ά.), «Δημόσιος και ιδιωτικός βίος στην Ελλάδα ΙΙ: Νεότεροι χρόνοι», Ε.Α.Π., Πάτρα 2002

Alexakis E (Αλεξάκης Ε.) «Επετηρίς του Κέντρου της Ελληνικής Λαογραφίας», τ.29-30(1999-2003), Αθήνα 2004

Alexakis E. (Αλεξάκης Ε.), «Οικιστική Εξέλιξη στο Δήμο Βοίων (Βάτικα) Λακωνίας: Ποιμνιοκατούνες, σπιτοκατούνες, χωριά (1700 – 2000), Εταιρεία Λακωνικών Σπουδών, Αθήνα 2006

Brotherhood of Epirus Sarakatsani in Athens (Αδελφότητα των εν Αθήναις Σαρακατσαναίων Ηπείρου), «Σαρακατσανέοι, Πορεία στον τόπο και στον Χρόνο» Αθήνα 2011, έκδοση της Αδελφότητας.

Brotherhood of Epirus Sarakatsani in Athens (Αδελφότητα των εν Αθήναις Σαρακατσαναίων Ηπείρου), «Η Σαρακατσάνα, εικόνα και Λόγος», Αθήνα 2008, έκδοση της Αδελφότητας.

Karali K (Καραλή Κ.) «Τα Σαρακατσάνικα Καλύβια», Θεσσαλονίκη, 2008, έκδοση της ιδίας

Karamanes E. (Καραμανές Ε.) «Οργάνωση του Χώρου, τεχνικές και τοπική ταυτότητα στα Κοπατσαροχώρια», Ακαδημία Αθηνών, Δημοσιεύματα του Κέντρου Ερεύνης της Ελληνικής Λαογραφίας, αρ 25, 2011

Kouremenos K. (Κουρεμένος Κ) «Σαρακατσάνοι» εκδοτικός οίκος Μέλισσα, Αθήνα 1984

Folklore Museum of Sarakatsani (Λαογραφικό Μουσείο Σαρακατσάνων), «Λεύκωμα Σαρακατσάνων», Σέρρες 2007, Έκδοση του Μουσείου Σαρακατσάνων.

Nitsiakos B. (Νιτσιάκος, Β.) «Τσιφλίκι και τσελιγκάτο: Η συμπληρωματικότητα δύο κοινωνικοοικονομικών σχηματισμών» στο Λαογραφικά Ετερόκλητα, εκδ. Οδυσσέας, Αθήνα, 1997

Sakavallas K. (Σακαβάλλας Κώστας), «Φως στους Θόλους», Δήμος Αισωνίας, 2009

Sifounakis N. (Σηφουνάκης, Ν.) «Οι μάντρες στη Λήμνο και στα άλλα νησιά του Αιγαίου, Εκδόσεις Καστανιώτη, Αθήνα, 1993

Traintafyllou G (Τριανταφύλλου Γιώργος), «Αρχέτυπα-από τις καλύβες και τα μαντριά

στη σύγχρονη τέχνη και αρχιτεκτονική», Αθήνα 2010

Triantafyllou Giorgos, “Archetypes, from Greek huts and sheepfolds to contemporary art and architecture”, Athens 2010, (independent publication)

Deligiannakis M. (Δεληγιαννάκης Μ.), «Το «θολιαστό» μιτάτο στην Κρήτη», εκδ. Τεχνικού Επιμελητηρίου Ελλάδος – Τμήμα Δυτικής Κρήτης, Ρέθυμνο, 2003

Efstathiou L. (Ευσταθίου Λουκάς), «Το Πρόβατο», εκδ. Ευσταθίου, Αθήνα, 1996

Thessalos K. (Θεσσαλός Κ.), «Προβλήματα και προδιαγραφές προβατοστασίων», στο Γεωργία και Κτηνοτροφία, τ. 10, *σελ. 109- 113,* 1999

**France**

Aussibal Didier, Briane Gérard. *Paysages de l’Aveyron : portrait et enjeux*. Ed. du Rouergue, 2007.

Besset Jean. *Orris d’Ariège*. Ed. [Vicdessos].

Bucaille Richard, Lévi-Strauss Laurent. *L’architecture rurale française : Bourgogne*. Ed. Berger-Levrault, 1980.

C.A.U.E. des Hautes-Pyrénées. *Les granges foraines dans les Hautes-Pyrénées*. Ed. C.A.U.E. des Hautes-Pyrénées, [1999].

C.A.U.E. de la Manche. *Réflexions pour l’implantation de bergeries pour ovins de pré-salés : paysage et architecture*. [Rapport], 2008-2009.

Izans Jean-Pierre, Rangassamy Régis. *L’art de bâtir les cabanes pastorales dans les Pyrénées : hautes vallées du Béarn et du Pays Basque*. Ed. Parc national des Pyrénées, 2001.

Lassure Christian, Repérant Dominique. *Les cabanes en pierre sèche de la France*. Edisud, 2004.

Parc naturel régional des Causses du Quercy. *Découvrir les constructions en pierre sèche des causses du Quercy*. Ed. P.N.R. Causses du Quercy, [ca 2007].

Perréard Michel, Raybaut Paul. *L’architecture rurale française : comté de Nice*. Ed. Berger-Levrault, 1982.

Raulin Henri, Ravis-Giordani Georges. *L’architecture rurale française: Corse*. Ed. Berger-Levrault, 1978.

Toulgouat Pierre. *La vie rurale et la maison de l’ancienne lande*. Ed. Marrimpouey/PNRLG, 1987 [réédition].

**Bulgaria**

Dechov, V. *Srednorodopsko ovcharstvo* [Sheepbreeding in the Central Rhodopes], Sofia 1903

Dukov, L. *Zhivotnovadstvo* [Animal Husbandry]. – In: Dobrudzha [Dobrudzha region]. Ethnographic and Folklore Studies of Bulgaria, Sofia 1974

Kolev, N. *Zhivotnovadstvo* [Animal Husbandry]. – In: Pirinski kraj [Pirin region]. Ethnographic and Folklore Studies of Bulgaria, Sofia 1980

Marinov, V. *Star i savremenen bit na ovcharite v sredna Stara planina* (Karlovsko I Kalofersko) [Old and Contemporary Living of the Shepherds in Central Balkan range (Karlovo and Kalofer regions)]. - Izvestija na Etnografskija instiut s muzej (IEIM), vol. VII, 1964

Marinov, V. *Savremenen bit i kultura na ovcevadi ot Kazanlashija Staroplaninski rajon* [Contemporary Living and Culture of Sheepbreeders from Karanzluk region of Central Balkan range], Izvestija na Etnografskija instiut s muzej (IEIM), vol. VII, 1966

Marinov, V. *Zhivotnovadstvo* [Animal Husbandry]. – In: Plovdivski kraj [Plovdiv region]. Ethnographic and Folklore Studies of Bulgaria, Sofia 1986

Marinov, V. *Prinos kam izuchavaneto na proizhoda, bita i kulturata ha karakachanite v Bulgaria* [Contribution to the Study of the Living and Culture of Sarakatsani in Bulgaria], Sofia 1964

Mirchev, D. *Galichkite ovchari* [The Shepherds from Galichnik]. – Periodichesko spisanie [Scientific Review] 1900, 61, v. 5.

Petrov, P. *Varhu razprostranenieto na ovcharskite kolibi komarnik i komar v Balkno-Karpatskata oblast* [Contribution to the Distribution of Shepherd' Huts Comar and Comarnik in the Balkan – Carpathean area]. –Izvestija na Etnografskija instiut s muzej (IEIM), vol. VII, 1964

Primovski, An. *Bit I kultura na Rodopskite balgari* [Living and Culture of Rhodopean Bulgarians]. – Sbornik nardoni umotvorenija [Bulletin of Folklore Studies] 1973, vol. 54

Rakshieva, S. *Zhivotnovadstvo* [Animal Husbandry]. – In: Loveshki kraj [Lovech region]. Ethnographic and Folklore Studies of Bulgaria, Sofia 1999

Rakshieva, S. *Zhivotnovadstvo* [Animal Husbandry]. – In: Sakar. Ethnographic and Folklore Studies of Bulgaria, Sofia 2002

Rakshieva, S. *Balgarskoto tradicionno podvizhno ovcevadstvo* [Bulgarian Traditional Mobile Sheep breeding], PhD Thesis, Sofia 1992

Rakshieva, S. *Pastirite ot Gramos* [The Shepherds from Grammos]. – Balgarska etnologia [Bulgarian Ethnology], 1996, v. 1

Rakshieva, S. *Pastiri, patishta, migratsii prez Sakar i okolnite ravnini (XV – XX c.)* [Shepherds, Routes and Migrations across Sakar and the adjacent Planes]. In: Ivanova,

Svetlana (ed.) Etnicheski i kulturni prostranstva na Balkanite [Ethnic and Cultural Spheres on the Balkans] Studies in honour of Prof. Dr. Cvetana Georgieva, Part II. The Present – Ethnological Discourses. Sofia 2008

Raychevski, St. *Zhivotnovadstvo* [Animal Husbandry]. – In: Strandzha. Ethnographic and Folklore Studies of Bulgaria, Sofia 1996

Shishkov, St. *Ovcevadstvoto v Trakijskata oblast* [Sheepbreeding in Thrace]. – Trakijski sbornik [Bulletin of Thracian Society], Sofia 1933, v. 4.

Vakarelski, H. *Etnografija na Bulgaria* [Ethnography of Bulgaria], Sofia 1974

Vakarelski, H., Mladenov St., Kodov Hr. *Bit i ezik na trakijskite i maloazijskite bulgari* [Living and Dialects of Bulgarians from Thrace and Western Asia]. - Trakijski sbornik [Bulletin of Thracian Society], Sofia 1933, v. 5.

Wakarelski, Chr. *Die bulgarischen wanderden Hirtenhutten*. – Acta ethnographica. 1956, V., 1957 1-2.

**Estonia**

Archive for Correspondents' Responses of the Estonian National Museum (ERM KV) 110, 116

Habicht, Tamara 1968. Laudad Kagu-Eestis. EM Ar XXIII. Tallinn, pp. 55-97

Habicht, Tamara 1972. Eesti saun. Valgus. Tallinn

Jaagosild, Ildike 1969. Laudad Lääne-Eestis ja saartel. EM Ar. XXIV. Tallinn, pp. 163-194

Liiv, Ildike 1962. Ühiskarjatamisest Saaremaal. EM Ar. XVIII. Tartu, pp. 38-79

Maaehitised Eesti Vabaõhumuuseumis. Kataloog. Huma. Tallinn. 1997

Ränk, Gustav 1939. Saaremaa taluehitised I. ÕES-i kirjad. Tartu

Lukas, Dan; Rennu, Madis 2005. KIVIAIA RAJAMINE, TAASTAMINE JA HOOLDAMINE. Põllumajandusministeerium.

**Poland**

ANTONIEWICZ WŁODZIMIERZ: *Bacówki, szałasy mieszkalne i produkcyjne oraz szopy pasterskie Tatr Polskich i Podtatrza* [w:] *Pasterstwo Tatr Polskich i Podhala*. T. 6: *Architektura i zabudowa pasterska Tatr Polskich i Podhala oraz góralska sztuka plastyczna*. Wrocław–Warsaw–Cracow 1966, p. 119–328.

HOŁUB-PACEWICZOWA ZOFIA: *Osadnictwo pasterskie i wędrówki w Tatrach i na Podtatrzu*. Kraków 1931.

KOLOWCA JÓZEF: *Budownictwo pasterskie w Tatrach*. ”Chrońmy Przyrodę Ojczystą” R. 2: 1946, no. 3/4.

KOLOWCA JÓZEF: *Historia i podstawy pasterstwa w Tatrach* [w:] *Tatrzański Park Narodowy*. Ed.. Władysław Szafer. ed. 2, zmienione i znacznie rozszerzone. Cracow 1962, p. 547–558

SOLECKI ANDRZEJ: *Architektura i ugrupowania przestrzenne szałasów w Tatrach*. „Teka Komisji Urbanistyki i Architektury” [Cracow] V. 6: 1972, p. 35–41.

SZAFER TADEUSZ PRZEMYSŁAW: *Tatrzańskie bacówki pasterskie* [in:] *Pasterstwo*… V. 6, p. 91–117; also reprint under the following changed title: *Z genezy tatrzańskiego dachu*. „Architektura Współczesna Ziem Górskich” [Cracow] V. 1: 1993, p. 19–80.

SZAFER T.[ADEUSZ] PRZEMYSŁAW: *Architektura pasterska*. „Architektura” R. 32 [33]: 1979, no. 383–384, p. 36–55.

ŚMIAŁOWSKI RUDOLF: *Architektura i budownictwo w Tatrach Polskich*. Warsaw 1959.

MOŹDZIERZ ZBIGNIEW: *Dziedzictwo kulturowe Tatrzańskiego Parku Narodowego* [in:] *Ochrona dóbr kultury i historycznego związku człowieka z przyrodą w parkach narodowych*. ed. Józefa Partyki. Ojców 2003, p. 425–458.

PIEŃKOWSKA HANNA: *Budownictwo pasterskie jako element kultury duchoweji materialnej w Tatrach*. „Teka Komisji Urbanistyki i Architektury” 6: 1972, p. 57–66.