TRADITIONAL SETTLEMENTS AND THE ARCHITECTURE OF BOYKOS WITHIN THE SYNEVYR NATIONAL NATURAL PARK IN UKRAINIAN CARPATHIANS

STRESZCZENIE

Modern environmental measures, which are actively implemented on the territory of the Boykivshchyna, have revealed a number of axiological problems that are manifested in the construction of settlements. Tourist expansion provokes the permanent loss of cultural landscape. The purpose of the article is to reveal the peculiarities of the formation of the cultural landscape and the traditional wooden architecture.

Key words: Boykivshchyna, cultural landscape, folk architecture.
1. INTRODUCTION

Boykovshchyna is a historical and ethnographic region on the northern and southern slopes of the Carpathians, extending from the rivers of Limnytsia and Teresva in the east to the Uzh and Oslava rivers in the west, covering the mountain regions of Lviv, Ivano-Frankivsk and Zakarpattia regions of Ukraine, and partly the Podkarpackie Voivodship of Poland, with an area of about 8 thousand km². The name comes from the name of the region’s population - Boykos. Here a typical Boyko housing school was formed, which unites a collection of historically established traditional means of architectural formation of space, constructive decisions in a timber, which were developed on the basis of world outlook and aesthetic ideals [5]. Its features are found in residential construction, household buildings, and especially in church building. Three-cupola churches are well recognized in the landscapes of the Boykovshchyna, which preserved the traditions of primitive forms of all-Ukrainian construction and developed it through the multiplication of beamings.

Modern environmental measures, which are actively legalized on the territory of the Boyko region, have revealed a number of axiological problems that appear in the construction of settlements. Ecologization of natural resources has caused tourist flows and strengthened market relations in their provision. New features of the region lead to the destruction of the basic principles of the development of autochthonous architecture.

In 1974, the landscape reserve of the national importance "Synevyr lake" was organized, and later in 1989 - the Synevyr National Natural Park, located in the Trans Carpathian region in the mountainous south-eastern part of the ethnographic region of Boykovshchyna, in the western part of the Gorgan ridge (in the territory of the Mizhhir’ya region of Transcarpathian region). The length of the park from the north to the south is 30 km, the width from east to west is up to 20 km. Under the protection of the Synevyr National Natural Park there are 43 thousand hectares of land covered by valuable natural cultural landscapes having appropriate zoning and operating regimes: the protected area is 5807 hectares, the area of regulated recreation is 21396 hectares, the zone of inpatient recreation is 11 hectares, the economic zone - 13192 ha. The main territories of the Park are occupied by conifers and mostly by spruce forests [7]. From 2017, the sites of NNP "Synevyr" such as Darvaika, Kvasovets, Strymba and Vilshany belong to the world heritage of UNESCO as one of the massifs of the beech virgin forests of the Carpathians and other regions of Europe¹ (fig. 1).

¹ Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe is a transnational composite nature of UNESCO World Heritage Site. This transboundary property stretches over 12 countries. Since the end of the last Ice Age, European Beech spread from a few isolated refuge areas in the Alps, Carpathians, Dinarides, Mediterranean and Pyrenees over a short period of a few thousand years in a process that is still ongoing. The successful expansion across a whole continent is related to the tree’s adaptability and tolerance of different climatic, geographical and physical conditions. N49 0 35 E22 20 20. Date of Inscription: 2007, extension - 2011, 2017. Property: 92,023.24 ha. Buffer zone: 253,815.38 ha

Also, some monuments of architecture are under the protection of UNESCO in the complex "Wooden Tserkvas of the Carpathian Region in Poland and Ukraine". Situated in the eastern fringe of Central Europe, the transnational property numbers a selection of sixteen tserkvas (churches). They were built of horizontal wooden logs between the 16th and 19th centuries by communities of Orthodox and Greek Catholic faiths. The tserkvas bear testimony to a distinct building tradition rooted in Orthodox ecclesiastic design interwoven with elements of local tradition, and symbolic references to their communities’ cosmogony. Located at the eastern fringes of Central Europe within the Polish and Ukrainian Carpathian mountain range, the sixteen wooden tserkvas (churches) are outstanding examples of the once widespread Orthodox ecclesiastical timber-building tradition in the Slavic countries that survives to this day. The architectural forms of the tserkvas with tri-partite plans, pyramidal domes, cupolas and bell towers conform to the requirements of Eastern liturgy while reflecting the cultural traditions of the local communities that developed separately due to the mountainous terrain. They include Boyko types either side of the Polish/Ukrainian border near the border with Slovakia at Smolnik, Uzhok and Matkiv. Built using the horizontal log technique with complex corner jointing, and exhibiting exceptional carpentry skills and structural solutions, the tserkvas were raised on wooden sills placed on stone foundations, with wooden shingles covering roofs and walls. N49 32 2 E21 1 56, date of Inscription: 2013.
Traditional wooden architecture was formed during the XVI - early XX centuries and was organically combined with local landscapes. Architectural forms coincided with natural forms, originally "grown" from the natural environment, causing enthusiasm for researchers. Looking at the old Boyko churches, traditional houses or household buildings, it comes to the understanding that they do not cause visual discomfort. However, at present, the rapid urbanization in tourist-friendly villages is increasingly possible to see imported architectural forms and locations of buildings that violate the harmony with the landscape and the traditionally formed wooden houses. In the Synevyr National Natural Park, where tourism is especially developed, these contrasts are especially noticeable. If in the first half of the twentieth century, housing and rebuilding of the houses were consistent with the formed environment by means of the measuring, proportions, and material, now we observe neglecting of any rules of development of a harmonious environment (fig. 2a, fig. 2b).

Fig. 1 Borderlands of the Boykivshchyna and the Synevyr National Natural Park. Source: processed by L. Parkhuts).


Fig. 2a. View of the development of the village of Negrovets in the middle of the twentieth century Source: [1, p. 485]

Ryc. 2a. Widok na wieś Negrovets w połowie 20 w. Źródło: [1, s. 485]

Fig. 2b. View of the development of the village of Negrovets in 2019. Source: photo by L. Parkhuts

Ryc. 2b. Widok na wieś Negrovets w 2019 r. Źródło: zdjęcie L. Parkhuts
One can observe that the loss of the authenticity of the architecture of the Boyko region occurs under the influence of several factors among which the most destructive to the architectural environment is the impact of the new economic development of cities and, as a consequence, the absorption of new building technologies on the basis of new and more accessible materials and structures. The second factor is the change in the separate provisions of city-planning legislation, which was adopted in Ukraine in 2011. The first factor contributes to the development of new forms, and the second one stimulates developers. Article 27 of the Law "On Regulation of Urban Development" provides for the development of plots of land on the basis of a building passport, which does not oblige owners of land to order and coordinate in the executive bodies of architecture and urban planning the architectural projects on residential buildings of up to 300 m² [22]. For new construction it is enough to get urban planning conditions and restrictions which are national and do not take into account the specifics of ethno-regions. Thus, responsibility for the quality of residential architecture is entirely up to the customer.

In recent years, villages located within the Synevyr National Natural Park have a tendency to actively replace buildings i.e. old wooden houses are dismantled, instead they erect new one-storey and two-storeyed houses with mansard, which are designed for so-called eco-tourism and reception of guests and providing them with a variety of amenities and attractions (fig. 3). The reason for the active construction was the increase in the number of tourists in the Carpathians. Village dwellers seek to provide not only housing for themselves but to rent it for tourists, so the size of houses is much larger than the needs of families. In addition, the process of generational change is natural and irreversible. The old generation passes away, and with it housing traditions and construction culture starts to be forgotten. New families need new and better housing, so they do not want to repair the old houses. Destructing the old traditional wooden houses that "grew" from the landscape and creating a new houses without the principles of its harmonious combination with the environment, the rural inhabitants gradually lose the quality environment that was formed by their parents and now became attractive to tourists.

Fig. 3 Synevyrska Polyana. View of the same estate site in 2015 and 2019. Source: photo by L. Parkhuts

Ryc. 3. Synevyrska Polyana. Widok na tą samą działkę w 2015 i 2019 r. Źródło: zdjęcie L. Parkhuts

In territories with special protection status, such as National Natural Parks, State Historic and Cultural Reserves or Museum-Reserves, the preservation of the cultural landscape becomes particularly hot. The formation of the cultural landscape took place during several decades or even centuries. In it the certain traditions of development and husbandry mastering were already formed. The value of the cultural landscape is the greater, the longer these traditions continue. But in history, at certain stages, the socio-political and economic changes often take place, and then housing and husbandry mastering of the landscape follows in a different scenario, as, for example, during the collectivization of
agriculture in the times of the Soviet Union. At the present stage of development, when the urban lifestyle actively influences rural settlements, we observe that the cultural landscapes of the Synevyr National Natural Park lose their acquired qualities primarily due to the loss of architectural planning and construction traditions, the lack of understanding by the communities of long-term development and, as a result, the appearance of a large number of groundless and erroneous decisions.

2. CURRENT RESEARCH

The general issues of the harmonious unity of architecture and landscape are the subject of interest for many authors. In their works, we find different approaches and concepts. Among many works, the greatest attention is drawn to those in which the harmony of architecture and landscape is closely linked to the visual perception of man and his emotions that arise in the process of observation. For example, J.O. Simonds draws attention to the feeling, pleasure and mood of a person from contact with the landscape [20]; V. Didyk and T. Maksimyuk believe that aesthetic values of the landscape arise from forms and spatial information of the place from which these values can be presented [6, p. 18]; Yu. Kurbatov attaches great importance to the links of associativity, which arise as a result of the influence of artistically generalized properties of the natural landscape, its "motive", "mood" on the creative process of the architect and his result is embodied in artistically generalized properties of architectural form [13]. Somewhat different views are expressed by J. Bogdanowski, M. Łuczyńska-Bruzda, Z. Nowák, who consider the harmony of landscape and architecture in the dynamics of development and associate it with the preservation of the "tradition of place" through the organic, functional and formal harmonization of new forms with the "tradition of place". In their opinion, compatible forms create a spatial harmony, determine the aesthetic experience and give a sense of economy, and the maturity of the forms indicate the correct actions in the landscape [4, p. 60]. A. Krivitska connects the successful formation of a harmonious environment with the need to take into account the laws of Noosphere, where the system "man-society-nature" operates. In her opinion, the environment affects a person with specific physical parameters and means of architectural composition, both aesthetic and environmental [12, p. 592-593]. E. Kolbovsky attaches great importance to the process of perception of the landscape and the norms of behavior in it. Although he does not directly speak about architectural works, he suggests that none of the laws can fully regulate the relationship between man and nature, since much of this regulation is hidden in the daily rules of human behavior in the landscape, and these norms are traditionally formed by perception [1, p. 12]. The thematic rapprochement of geography and landscape architecture makes the cultural landscape a "competitive" term in the good sense of the word. It helps to find common initiatives, participate in research, development and implementation programs. Today, we have much more powerful research technology and great opportunities for interpreting the cultural landscape. The combination of traditional ideas with the modern apparatus of research allows obtaining unprecedented results and points to the application of landscape analysis in specific problem and regional studies [14, p. 70-77]. Special threats have appeared in mountainous areas due to the development of tourism and the accumulation of large-scale infrastructure, although they are covered by the conservation status of national parks [11, p. 27-38].

3. MULTIDIMENSIONAL RESEARCH OF THE BOYKIVSHCHYNA

In this article attention is focused on several objects that are located on a small part of the ethnographic area of the Boykivshchyna and are interconnected by a common territory with homogeneous features. Cultural landscapes that have evolved over the years as the interaction of the ethnographic group of people with the natural environment in a certain morphologically homogeneous area of residence, in addition to the general aesthetic
features, have a special individual features that distinguish them from others. In this case, it is important to identify those factors that have contributed to the development of these special distinctive features. From this standpoint, the problem of the harmony of architecture and landscape of the ethnographic region of the Boykivshchyna, and especially within the Synevyr National Natural Park is not sufficiently clarified in the scientific literature. There are a number of publications that are tangent to this problem. Most studies are devoted to geographic problems, descriptions of flora and fauna, which became the basis for creating zones of protected landscapes. The study of the morphological structure of mountain landscapes and the distribution of the territory of the Synevyr NNP according to the categories of prevailing landscapes and their vegetation [10, p.47-52] form the basis for determining the typological features of the cultural landscape of the territory. The actions in the memorial protection activity led to the founding of museums of wooden architecture within the Synevyr NNP and measures to protect the monuments of wooden architecture in rural settlements [2, p. 239-246]. Some issues of housing and landscape development (for example, the village of Synevyr'ska Polyana) are described in monographic editions [3]. The features of the sacred construction of Boykos are the most highlighted. From the architectural and ethnological point of view, based on modern methodological principles, one hundred and fifty years of experience of historical research of sacral wooden architecture were analyzed, the genesis of volumetric-planning decisions and factors that influenced the formation and distribution of certain types were highlighted; and thanks to that the urban and landscape aspects of sacral wooden architecture were revealed [21]. This theme is constantly enriched by researchers bringing new details into the formation of a cultural landscape [1, p. 498-508]. The study of the symbiosis of architecture and landscape in the south-eastern Boykivshchyna was begun only now. The main types of village planning and building formation were investigated on the example of separate villages (Kolochava, Merezhor, Negroves, Synevyr, Synevyr’ska Polyana, Sloboda, Zahorb, Pereny), and the compositional means of expression of wooden housing architecture of the late 19th and early 20th centuries were discovered. Attention was also drawn to the causes of degradation of cultural landscapes within the National Natural Park [16, p. 144-158].

4. RESULTS OF THE STUDY

4.1. Taking into account local topography

In the very beginning of the carefully studied the microtopography of mountain relief and seasonal behavior of water arteries. Ethnic Boykos were guided by the main principle of the location of manor houses along the water artery, but on dry raised areas of the southern sector of orientation. The farmstead was laid within the limits of a field (16 or 21 hectares) - the land areas were given by kings via responsible persons called the settlers of every patriarchal family.

Fields were laid in identical long stripes across the main water artery within the settlement from one edge to the other. First, farmsteads with courtyards were located in a valley space in which a river or a stream served as the main compositional axis, and agricultural lands were stretching by stripes from the estate on the slopes of the mountains to the limit of forest plantations. The water arteries with the coastal strips were not reclaimed and served as the drainage surfaces of the natural framework, which preserved the ecological balance. Here, in the mountainous landscapes of the Boykivshchyna, the principle of the natural framework with the polar characteristics - the upper axes (water-separation surfaces) and the lower axes (water-intake surfaces) - was realized. This principle is dominant in the concept of ecological equilibrium of urban development systems [17, p.32-33; 18]. Although the concept of the natural framework is considered at the example of the region (macro level), its principles act in the same way at the micro level, that is within the administrative-territorial unit (fig. 4).
Investigations revealed that in the majority of cases building of the farmstead was carried out on the second floodplain terrace and less on the first one. In order to prevent the negative effects of frequent flooding on houses, a place that is not accessible for water floods, but at the same time close to water was chosen. The first settlers among the complex terrain chose plain places in the valleys of the rivers or the plateau on the hills. In this case, the hills or terraces became platforms for architectural works (fig. 5).

In the farmstead at a certain distance from its border separating the main street and the farmstead, the peasants laid the yard. In the accounting documentation, the area of the yard was recorded separately from the estate and other land plots, which can be explained by the payment of taxes. The yard consisted of an area occupied by all buildings and the space between them, and in rare cases, with an entrance from the street. The residential and farm buildings were situated in the yards. The house was oriented with a dominant facade and the main entrance to the sunny side (south-east and southwest rumby). On the plain areas a line of development was traced, however, in sections with complex relief and in places where the water artery configuration was changed, the lines of development were not followed.

A traditional house is a "two-halfs house", where two living rooms are located between the entrance passage. The household buildings were erected separately. But in the late XIX - early twentieth century such houses became widespread, where under one roof both residential and utility rooms were arranged. These were the three parted houses,
where between an entrance passage a living room and stables (less often a pantry) were arranged. Other household buildings together with a house formed a courtyard (fig. 6).

When new families were formed, the land was divided in length into two, four or more parts, and these parts were inherited by the descendants or could be sold to other peasants. Partition of land has led to the consolidation of construction. In addition, in the 18th century, for the settlement of new territories families were given half or a quarter, or even less of the previous size of land. In the final result, the land plots became so narrow that settler was forced to build the house with the front facade to the street to provide passage to the mansion, but still they tried to provide the orientation of the front facade to the sunny side.

In the 20-30's of the XXth century the number of inhabitants in villages increased considerably and the problem of new estate plots became acute. Due to the lack of land plots in the valley areas, the peasants settled the upper levels and thus in the mountain pasturegrounds new estates were built. However, the settlement of the upper levels was not the only reason.
The conditions for the development of villages were dictated by the economy of farming. In the Boykivshchyna region the tillage farming dominates over the cattle farming, but in the southeastern part, where the high mountains of Gorgan are situated, the crop production is ineffective. Instead, livestock rising became more promising, and this contributed more for population of mountain pasture-grounds.

Farmsteads, which were laid in the mountain valleys or areas cleared from the forest, did not meet the guidelines that were acceptable for the valley housing, except for its custom to orient the houses front to the sunny side. There were no clearly expressed hills, terraces, streams, river valleys. Sloping relief acquired soft ("calm") outlines. The houses were laid in the middle of the mountain valleys at far distances from each other but so that the neighbor's house fell into the field of view.

The boundaries of the farmers' plots were defined rather by the form of relief, water flow and ability of highlanders to master the land than planning principles that were usually applied in the valley spaces at the initial stage of settlement of villages. The main criteria for selecting of a site for development were the availability of water source and transport accessibility to the house. Thus, the open spaces with meadow grasses and the silhouettes of the mountains gave the opportunity to perceive traditional architectural forms differently (fig. 7).

At first, houses in the mountain valleys served as temporary housing for shepherds, so a living room, an entrance passage and a stable for sheep, goats, or cows were placed under one roof. In some houses, the living room was without a stove, which meant that in the cold period people left temporary huts and moved to a permanent houses located in the valley space, taking animals with them.

4.2. Consistency of architectural forms with natural

Investigating of the exposing views on residential buildings or sacral buildings from the streets of settlements, reveals the organic unity of the form of relief and architecture: the outlines of houses and churches are well combined with the line of hills and become its continuation and, at the same time, the completion of a composition, which combines natural and architectural forms. The silhouettes of distant mountains supplemented such compositions. The lines of the terraces and the lines of the sloping roofs were also coordinated with each other. The houses were low in height and had close contact with the ground.
It was noticed that the harmony of folk architecture with the landscape was achieved by establishing the identity of inclined lines of mountains and plastic lines of water arteries. The domination of inclined roof lines over the vertical lines of the facades did not cause significant contrast (Fig. 8). Generally in nature, vertical lines occupy a small percentage. Even trunks of trees have plastic sloping lines, and at far distances the crown of the trees hide the vertical shape of trunks or minimize them. Similarly, in Boyko houses the verticals of facades are minimized, which allows the form of houses with high and inclined roofs to be perceived as not causing dissonance. The shape of the houses that were laid on the upper levels contrasted only with the planes of the mountain valleys, but due to this all the features of the wooden architecture of the Boykos were revealed. Silhouettes of houses were clearly expressed in the space of the mountain valleys and became accents against the background of the multi-faced distant mountains. There more insolation is provided, but beside the sky dome, the mountains occupy a large part in the perception of the landscape.

The main building materials were wood and stone, which were taken from the natural environment and organically were combined with it. Wooden structures were not tinned and covered with no paints, so under the influence of atmospheric factors the tree acquired a natural gray-brown tincture.

Fig. 8. Houses from the village of Zahorb. Identity of architectural and natural forms. Source: photo by L. Parchuts, 2018

4.3. Proportionality of architectural forms

Each individual house was built on the principles of harmony, because the craftsmen used their "standards" [19, p. 460-462]. Analyzing compositional and aesthetic features of wooden houses, we conclude that the basis of Boykos folk architecture is the system of proportions expressed in simple terms. The masters found the correspondence between horizontal, vertical and declining lines, which created a special harmonic system on the balance of all components of the house.

The climatic conditions became the determining factor in shaping the house. A large amount of precipitation and wind conditions led to the construction of a large roof, which in shape was similar to the hill. The ratio of the height of the roof to the visible facade was in the proportion of 1: 2,3-2,4. Residential houses were built by folk craftsmen using proportions close to the golden section. In the traditional houses of the nineteenth century, the outer dimensions of the side facade fit into the square, and the main one - in a double square. The angle between the rafters at the top of the roof was 70°. However, in the twentieth century, roof height was reduced, and the angle between the rafters increased accordingly to 82-90 (fig. 9).
5. CONCLUSIONS

Boyko building school and a set of its traditional means of architectural formation, rational economic activity of the highlanders formed a unique cultural landscape of the region. The perfection of architectural forms was based on perfect proportions, the use of natural materials and simple color combinations. The harmony of architecture and landscape was achieved due to the identity of architectural forms with the general outlines of natural forms, minimizing of vertical joints, and favoring sloping lines. Strengthening of tourism flows in recent decades forms a new functional development of the region. Changes in generations and new architectural and planning standards lead to the destruction of the basic principles of form modelling of autochthonous architecture. The cultural landscape of the Boykos is ruining which has not yet received a thorough study and proper evaluation. The high appreciation of UNESCO's of the natural landscape in the region also obligates to protect the whole its cultural landscape and not just individual artifacts. The results of these studies can be used in developing recommendations for the development of rural areas and the correct inclusion of modern architecture in the traditionally formed cultural landscapes of the Synevyr National Natural Park.

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AUTHOR’S NOTE

Halyna Petryshyn – architect and urban planner, Dr arch., professor, head of department Urban Planning and Design, Institute of Architecture, Lviv Polytechnic National University. Research interests: history and theory of urban planning, landscape architecture.

Lubomir Parkhuts - architect and landscape architect, Senior Lecturer, Department of Landscape Architecture, Landscaping and Urboekology of the National Forestry University of Ukraine (Lviv). Research interests: history und tradion of the rural settlement planning, landscape architecture.

O AUTORACH


Kontakt | Contact: hala.petr@polynet.lviv.ua; lubom.pa@gmail.com