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Research, preservation and restoration of wooden churches in Ukraine

Badania, ochrona i restauracja drewnianych kościołów na Ukrainie

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Introduction

Wooden church architecture is the embodiment of original folk traditions, and the architectural and artistic traditions of a particular region, because, unlike stone architecture, it is much less dependent on borrowed influences. The culture of a given people absorbs folk traditions, rituals, songwriting, and in the aggregate, all these components come together as one, which creates the image of the people and forms the basis of its mentality. Wooden church architecture is very significant in the system of folk values and traditions; it is so closely connected with all other aspects of culture; it is simply impossible to consider it separately¹.

Since timber is more susceptible to adverse atmospheric factors and fire than stone and brick, wooden temples were less durable, more often destroyed and rebuilt; they needed to be repaired more often. That is why a significant part of wooden churches was not preserved, and information about them was stored only in archival sources, and their images – in drawings and old photographs². Those temples that were moved to specialized antique building museums – museums of folk architecture and life – are in better condition, but there are many examples where existing old churches

in villages and towns either die or are distorted due to non-compliance with the requirements of their operation and restoration technologies, as often instead of restorations, ordinary repairs are carried out using materials that adversely affect the condition of the monument. That is why special attention should be paid to the restoration and preservation of wooden heritage, and this problem itself is international, given the small percentage of churches that have been preserved.

The church of Saint Paraskeva of the village of Zarubintsy (1742) as a masterpiece of Ukrainian wooden architecture (fig. 1)

The first wooden churches in the territory of modern Ukraine are mentioned in the annals, the most famous of which is the „Tale of Bygone Years” dated to 1113, in particular, we find evidence of the wooden church of St. Nicholas on the Askold grave and the church of St. Iryna. References to the annals and ancient ritual songs with the mention of wooden churches are in the scientific works of scientists of the nineteenth and twentieth century – P. Glazunov, G. Pavlutsykyi³, V. Sichynskyi. Most of the materials on the history of the construction of wooden churches in the territory of the Kyiv prov-

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Fig. 1. General view of the Saint Paraskeva church of the village of Zarubintsy; photo by Y. Ivashko.

ince are descriptions without graphic confirmation. It also applies to Lavrentii Pokhylevych's „The Narratives about the Populated Areas of the Kyiv Province” – the most complete list of all the wooden churches currently existing⁴. From the book, we learn about the date of construction of the unique tower church of Eastern Podillia, which has been preserved – the church of Saint Paraskeva, which was transferred to the Pyrohovo antique building museum (Museum of the Folk Architecture and Life of Ukraine) (fig. 1).

We discovered data about the founders of the church in Visitation of 1784, where it was recorded that the construction was started in 1742 by the founder, Princess Ursula Franciszka Radziwill (1705–1753), the only daughter of the Cracow castellan and governor of Cracow, prince Janusz Antoni Wiśniowiecki and the wife of the great Lithuanian hetman Mikhail Casimir Radziwill, the last representative of the famous family of the Wiśniowiecki princes (fig. 2).

This woman was a prominent person of her time, and the history of her life is no less interesting than the history of the Zarubintsy church built at her expenses. The princess was fluent in several European languages, was a connoisseur of world literature, thanks to the creative atmosphere in her parents' home, she inherited her father's belletristic and rhetorical abilities and the theatrical talents of her uncle Michał Serwacy Korybut-Wiśniowiecki. After her marriage, she began theatre performances at Nesvizh Castle, since then the theatre was an entertainment exclusively of the royal court in



Fig. 2. Portrait of Ursula Franciszka Radziwill.

Warsaw. She also managed the restoration work in the castle, looked after the library, was actively involved in cultural and Christian-educational activities, and eventually turned Nesvizh into a famous cultural center. The heyday of cultural life in Nesvizh falls on the years 1746–1752. Plays by Moliere, Voltaire, as well as edificatory plays written by the princess herself were staged in Nesvizh Castle. She thought of all her works as family theatre performances for some festivities, sometimes in the open air. The princess died after a long illness at the age of 48 in 1753. After her death, her legacy included about 80 poetic works, as well as several prose treatises in French.

The church, of which the Grand Duchess is considered to be the founder, passed from Orthodoxy to the Union several times and finally became Orthodox after the third partition of Poland in 1795.

It was the period of maximum prosperity of wooden Orthodox construction in the Kyiv province and the time of highest degree of development of architectural and spatial composition, proportional building and ornamental decoration of churches by the Orthodox Polish gentry, philistines, merchants and communities of believers⁵. Despite the numerous wars and rebellions that constantly took place in Kyivshchyna in the seventeenth and eighteenth centuries, the construction of wooden churches did not stop, contrariwise, the middle of the eighteenth century is considered the zenith of its development.

The middle and second half of the eighteenth century represents the heyday of wooden architecture, especially in the countryside. As a result of mass migrations of peasants to Left-Bank Ukraine, at the invitation of Poland, peasants from other regions moved to the devastated lands of the Kyiv region. Also, a na-



Fig. 3. The openness of the central cupola in the interior; photo by Y. Ivashko.

tionally conscious local clergy remained in the villages until the beginning of the nineteenth century, which contributed to the preservation of traditions in wooden church architecture.

The active life of the territories of the Eastern Podillia, their advantageous location along with fertile lands and a warm climate led to the colonization of these lands and, as a result, to migration processes, due to which the indigenous culture and architecture mixed with those brought from outside.

The decorative appearance of the form was unusual to Ukrainians, who recognized the genuine harmony of shapes of wooden construction, both outside and in the interior. In the eighteenth century, this found its representation in the openness of domes in interiors up to the zenith, the appearance of arches-cuts in the walls of log houses that formed common spaces and in the richness of the ornamentation and carving of wooden elements (fig. 3).

The log structure of wooden churches was noted for its strength. The transition from the log wall to the ledge can occur either using girt strips (when the cross-beams protrude from the plane of the wall) or without them, using inclined wedges. The absence of crossbars in the churches was explained by the fact that the structure of the „octagon placed on a quadrangle” was often not pulled together with cross-beams when the log construction was built well. If the log structure was not brought out too accurately, then cross-beams were also added to the inclined wedges. In the church of the village of Zarubintsy, made of high-quality oak

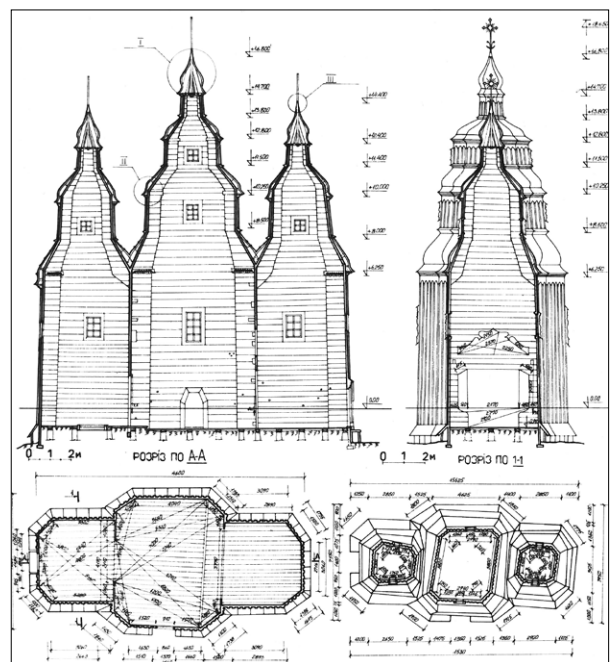


Fig. 4. The measurement diagram of the church of the village of Zarubintsy; author: Y. Ivashko.

timber, with complex carvings on cornices and jambs, both cross-beams and inclined wedges were used at the same time. The log structures were connected by the construction of „halved joint”, a „octagon placed on an octagon” type of construction (fig. 4).

Logs were laid using a string, with a slight slope; the weight of the structure was redistributed to the center;



Fig. 5. The interior of the church of the village of Zarubintsy (1742); drawing by Y. Ivashko.



Fig. 6. The carved side jamb of the church; photo by Y. Ivashko.

the so-called bonfire scheme was used (the displacement of the tops of the southern and northern shoulders to the south and north, in order to eliminate overloading of the sides of the central section by the weight of log structures of adjacent aisles, that leads to the deformation of the central log construction), this ensured the rigidity of the structure (fig. 4). It made it practically unnecessary to lay the basement for a church; they were placed on wooden stands, set up apeak; they were protected from damp by the plank shelters.

The Saint Paraskeva church of the village of Zarubintsy is one of the most widespread types in Ukraine, featuring three log structures and three cupolas; according to Mykhailo Drahan⁶, it evolved from a house comprised of three parts and gradually improved (fig. 4).

The church's central and lateral log houses have a completely faceted shape with corners cut from the west in the western direction and from the east in the eastern direction.

Similar three-part churches arose during the predominance of Baroque traditions borrowed from Europe and were more pronounced in the exterior and interior, the smoothness of the silhouettes, compared with churches with the square log constructions (fig. 5).

Such churches, where each log construction was crowned with an independent cupola, open in the in-

terior to the zenith (fig. 2), were called tower-shaped, and most of them were built either in Eastern Podillia itself or in adjacent territories. Among the five identified types of faceted plans, distinguished by the proportions of their central log constructions, the church of the village of Zarubintsy belongs to type 2 – with a vertically elongated middle log house. The plan is built on the basis of a national measure, the module is 40 cm, two timber works stand for the height module.

The Church of St. Paraskeva of the village of Zarubintsy is a typical example of the tower-type all-facade church (in contrast to Catholic churches, where the main facade faces westwards). Symmetry, a tower-like shape, the spatial construction of the interior with simultaneous vertical and horizontal opening are three regional signs of Ukrainian wooden church architecture. In the church of the village of Zarubintsy, the height of the walls of the tiers and the height of the roofs decreases upwards. Due to the inclination of the walls to the central axis, the temple appears to be 1.25–1.5 times higher than it is. This effect was noted by researchers in many districts of the Kyiv province. However, in the area with the spread of tower-type churches, this slope is greater and the effect of the illusion is stronger

The acoustics in churches with faceted log construction and tops was better than in the churches with

quadrangular log construction. In wooden churches with faceted tops, there was no problem with the sound focusing at the center of the temple, as in stone churches with a round cupola. The main role in creating successful acoustics is played by the highest tiered central cupola. The structure, which features ledges, also helps to reflect sound: the greater the angle of inclination of the ledge, the more tiers the wooden church had, the more surfaces the sound reflected and the more times the sound reflected before returning down.

The decoration of the church of the village of Zarubintsy deserves a mention of its own. Its staples, side jambs, window frames are ornately shaped.

In 1936, the temple was closed for worship and a collective farm pantry was set up. During World War II, a part of the log construction with the cupola was damaged, and the log house was deformed, as can be seen in the measurement diagram. In 1942, at the initiative of Petro Yurchenko, a famous researcher of folk architecture, the church of Saint Paraskeva was transported to the Museum of Folk Architecture and Life in the village of Pirohovo. It remained closed until 1993 and museum exhibits were stored there. Liturgy began only at the end of 1993. In 2003–2005 its unique eighteenth-century iconostasis was reproduced. Now, the church, which is called the „last giant of the Dnieper region”, is the main landmark of the exhibition „Central Naddnyprianshchyna”.

Conclusions

Despite stylistic differences between the wooden churches of the Kyiv province, the problems of their preservation and restoration are similar. Timber is a flammable and biologically unstable material. The practice of creating museums of folk architecture and life has proved that most of the exhibits are damaged by biodeterioration; objects suffer from detrimental biological factors – wood-destroying fungi, insects and mould, fires, the adverse effects of moisture and changes in temperature and humidity conditions. Therefore, the problem of wood preservation in architectural monuments is very acute. The specialists of the „Ukrrestavratsiia” corporation selected mixtures for the removal of destructive biological agents and at the same time for protection against adverse atmospheric factors. These included a number of synthetic polymers for impregnating reinforcing compositions, some of which also protect the surfaces structures and supplement the loss of destroyed timber⁷.

They eliminate wood decay of beam ends and cores. They also address the weakening of the joints of the rafter legs with the wall plate, the weakening of the junction and the weakening of rotten log walls.

Works on reinforcing wooden elements are carried out after a thorough engineering and technical examination of the monument with the definition of zones with different stages of destruction.

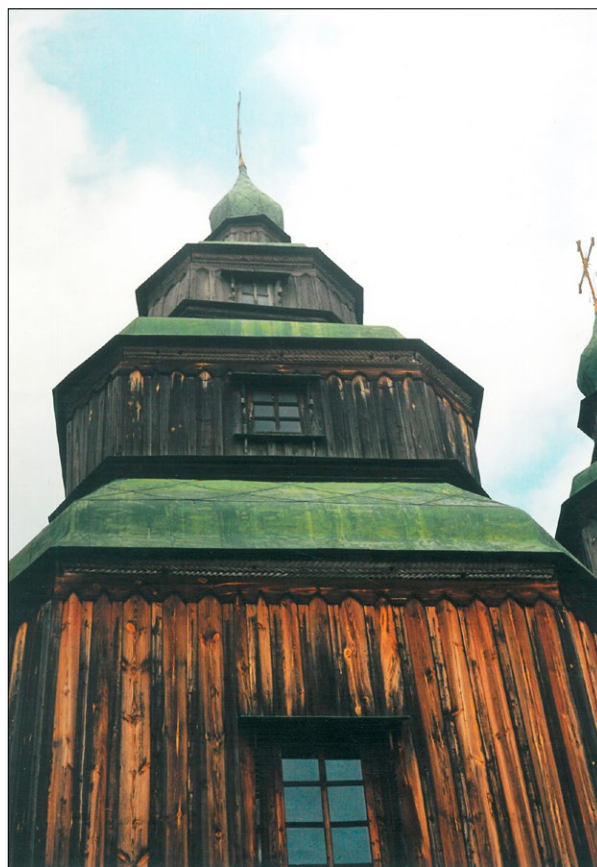


Fig. 7. A fragment of a central log construction with vertical planing; photo by Y. Ivashko.

The mass of the removed wood in the zone of destruction is supplemented by pouring a special compound (a mixture of resin and filler from wood chips, chopped oakum, quartz sand, which in its physical properties is close to that of wood) into a pre-prepared compacted framework; after hardening over a period of 1–30 days, depending on the material, a statically full section of the beam is created, fixed by rod reinforcement inserted into healthy wood.

Antiseptic (chemical) prevention consists of antiseptic treatments applied to wooden structural elements and the disinfection of wooden structures affected by fungi. For buildings and structures made of wood, biological and fire proofing measures are carried out simultaneously.

They involve the use of methods of treating wooden surfaces with antiseptic and flame retardant solutions – the saturation of wood by irrigation and continuous loading. The extermination of insects is carried out by mechanical, physical and chemical methods. Wood damaged by wood pests cannot be used even in temporary structures and must be burned. Partially destroyed wooden load-bearing structures whose replacement is not desirable, are reinforced by deep impregnation with solutions of polymers or monomers with their subsequent hardening.

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² D.P. de la Flise, „Medical and topographical description of the state property of the Kiev Province, compiled by a doctor of medicine de la Flise (February 1854)”, Vernadsky National Library of Ukraine of NAS of Ukraine, Department of manuscripts, f. VIII, no 188, l. 281; H.H. Pavlutsyki, *Antiquities of Ukraine*, part 1: *Wooden and stone temples*, Kiev 1905; L. Pokhylevych, *Tales of the populated areas*

of the Kiev province, Kiev 1864; V.P. Samoilo vych, *Ukrainian national housing (late nineteenth and early twentieth centuries)*, Kiev 1972.

³ H.H. Pavlutsyki, *op. cit.*

⁴ L. Pokhylevych, *op. cit.*

⁵ Y. Ivashko, *Wooden church architecture of the Kyiv region*, Kiev 2003; H.N. Lohvyn, *Across Ukraine: ancient art monuments* Kiev 1968; V.P. Samoilo vych, *op. cit.*; V. Scherbakivskiy, *op. cit.*

⁶ M. Drahan, *op. cit.*

⁷ *Conservation and restoration of architectural monuments. Guidance manual*, ed. M.I. Orlenko, Kyiv–Lviv 1996, p. 176–217.

Abstract

This article concerns the features of the construction of wooden Christian churches in Ukraine. At all times, wooden architecture strongly expressed the regional characteristics of each region and country. Its formation was influenced by climatic factors, historical events and ethnographic features. Given its higher susceptibility to adverse external factors, in comparison to stone architecture, it is necessary to preserve as many wooden churches as possible. On the example of the church of the village of Zarubintsy, we identified the main features of wooden Orthodox churches in the territory of the Kyiv province and described the main restoration techniques applied to wooden architectural monuments.

Streszczenie

Artykuł dotyczy typologii konstrukcji drewnianych kościołów chrześcijańskich na Ukrainie. Od dawna architektura drewniana wyrażała regionalne cechy budownictwa poszczególnych regionów każdego kraju. Miały na nią wpływ czynniki klimatyczne, wydarzenia historyczne oraz etnografia. Biorąc pod uwagę większą podatność na niekorzystne czynniki zewnętrzne w porównaniu z architekturą murowaną, ważną jest właściwa konserwacja prowadząca do zachowania jak największej liczby drewnianych kościołów. Na przykładzie kościoła we wsi Zarubintsy zidentyfikowano główne cechy drewnianych cerkwi w obwodzie kijowskim i opisano podstawowe techniki renowacji stosowane podczas konserwacji drewnianych zabytków architektury.