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The restoration problems of the gothic alabaster portal of the parish church in Drohobych

Problematyka odnowienia gotyckiego alabastrowego portalu w kościele parafialnym w Drohobyczu

Key words: alabaster; portal; Drohobych; restoration; problems

Słowa kluczowe: alabaster; portal; Drohobych; problematyka; restauracja

1. INTRODUCTION

The parish church in Drohobych was built in 1392 and consecrated to the Assumption of the Virgin Mary, Holy Cross and Bartholomew the Apostle [11]. This church belongs to the cultural heritage of two nations – Ukraine and Poland. It is located on the southwestern side of the Market on a spacious square planted with trees, and was constructed of red fire brick with rubble stone in the foundation. The gothic alabaster portal, situated on the southern side of the façade, is a beautiful embellishment of the church. Its foundation is attributed to Jan Mężyk – starost (chief) of Drohobych. Throughout the history of the church, the portal had repeatedly suffered from the renovation works, regular changes and deteriorations caused by nature and anthropogenic activity. As of now, the restoration problems have not been discussed nor covered in scientific papers. The gothic portal of the parish church must be preserved as an example of using alabaster in exterior and as a cultural heritage site. Examination of the restoration problems and development of recommendations will lead to the real actions to preserve the site and in the future will be the basis for the creation of restoration project of alabaster portal.

2. RESTORATION PROBLEMS

1. The portal is 3 meters high. It consists of 14 blocks, each of which is hewn of one solid. The blocks height and width are different. Consequently, the weight also differs. The keystone of the portal is in critical condition. Constant stress and weather conditions increase the collapse risk of the portal's keystone. It is necessary to arrange a safe disassembling of the blocks and their transportation to the restoration workshop.

2. Numerous secondary additions of different types of alabaster, different conservation state and a few types of cement mortar create additional problems during the restoration process. All of the alabaster panels are fixed of the cement mortar. Some of them are unstable. Cement was used to fill the cracks, gaps, additions of losses and to smooth out the stone surface. When removing cement the structure of alabaster will be damaged anyway. Therefore, it is necessary to select the most effective and safe method of removing the cement layers.

3. Another problem of portal's restoration lies in the structure of the stone. Alabaster consists mainly of gypsum – calcium sulfate dehydrate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$). The Mohs scale of mineral hardness defines hardness value 2. Alabaster is easy to work. Transparency is one of its

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Fig. 1. Drohobych, parish church, south portal. Photo by B. Lieberman, 1906. Photograph collection of the Institute of the History of Arts UJ (repr. W. Walanus) [6]



Fig. 2. Drohobych, parish church, south portal, 2018

features. Alabaster is a sedimentary rock fine-grained type of gypsum. Its structure may include impurities of clay, gypsum, limestone, selenite, iron oxide, and others. Alabaster occurs in various shades of yellow, grey, white, with veins or spots. The portal's alabaster contains impurities of clay and gypsum. *Deterioration of the stone structure.* The exposed stone surface is constantly under the influence of natural factors, such as rain, sun, wind, dampness, contaminated air etc. As a result, the stone structure is being significantly destroyed and the portal's appearance loses its authenticity. The interaction of all natural factors, which cause the structural deterioration of the stone, is called **weathering**. [2]. There are two types of weathering in the Svyanko's monography – physical and chemical. **Physical weathering** occurs due to seasonal and daily temperature fluctuation, water freezing, crystals growth, plants root system, etc., and is the mechanical breaking down (disintegration, loosening) of rocks into smaller fragments due to natural causes [3]. The gloss loss, cracks formation, stone exfoliation, furrows creation are the consequences of the physical weathering of the stone. These deteriorations and others have long appeared on the alabaster stone.

4. Water solubility. Water, which enters the cracks, dissolves the alabaster crystals from the inside. Water flowing over the stone surface washes the crystals from the outside, forming the furrows. Another destructive feature of water occurs in freezing temperature. "It is

known that when water freezes the volume increases to 8–10%. The stress in cracks, caused by freezing, expands them and destroys the rock integrity". [3]. There are four main chemical weathering processes: oxidation, dissolution, hydration and hydrolysis. [3].

5. Since 1906, the portal consists of two types of stone (alabaster and sandstone), which differ from each other in texture, structure, solidity, conservation state etc. The deteriorations processes and their consequences appear differently. Accordingly, the restoration technology of sandstone will differ from the restoration of alabaster.

3. RECOMMENDATIONS

The restoration process will include such stages: 1) disassembling of unstable parts of the portal; 2) cleaning of contaminated surfaces; 3) strengthening of stone; 4) portal waterproofing; 5) reconstruction of the lost portal fragments; 6) application of protective coating. *Sandstone blocks of the portal:* 1) cleaning of contaminated surfaces; 2) stone desalination; 3) strengthening; 4) addition of lost fragments.

Disassembling of unstable parts of the portal.

Before the disassembling of unstable parts of the portal, it is necessary to do a temporary structure strengthening of the portal. This will provide stability and opportunity to disassemble the blocks outlined in the restoration programme. The portal has numerous

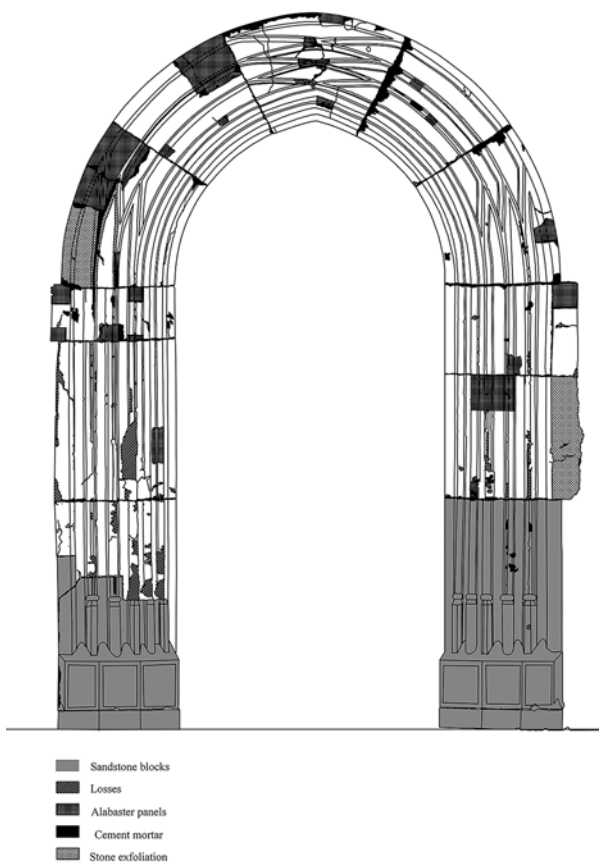


Fig. 3. The scheme of the alabaster portal losses

secondary additions. Therefore, we start by removing the small unstable fragments of the block, and only then disassemble the whole block. Every element must have a marking. Some of the disassembled secondary additions will be unusable for further assembling. Such elements must be replaced.

Cleaning of the contaminated surfaces

Cleaning process will include various mechanical and chemical means. It is not recommended using water at this stage, only the solvents that do not damage the stone's structure, such as alcohols, solvent 646, white spirit, turpentine etc. Mechanical means will be used for cleaning the stone from gypsum, cement or lime mortar.

Strengthening of the stone

After the cleaning of the portal, the stone is unprotected and exposed to the outer natural factors. It is necessary to inject all cracks and splits with alcohol polymer solution in order to prevent the deterioration of the stone.

Portal waterproofing

Horizontal waterproofing of the portal is one of the most effective way to reduce the excessive dampness. As a rule, masonry walls absorb the dampness from the basement, thereby constantly moisturizing the stone. The mortars between the blocks, walls and portal also absorb the wetness, which causes their deterioration. It is necessary to apply horizontal waterproofing from the sandstone portal line.

Reconstruction of the lost portal fragments

There are three possible variants for the reconstruction of losses. The first one is the use of polyester resin mixed with alabaster powder and pigments. The second – application of acrylic gypsum with pigments. After such addition, it is necessary to make gypsum hydrophobic. The third variant is to cut out the lost fragments from alabaster. The pigments are used for tinting the additions by replicating the stone texture. Alabaster panels must be attached to the high-quality gypsum mortar.

Application of protective coating

The final stage of work is protection from the outer factors of deterioration. It is possible to restore colour saturation of the stone and protect its surface from the effect of the outer factors by means of paste wax and polishing. In addition, it is necessary to renew protective coating every 5–10 years.

Sandstone blocks of the portal

1) *Cleaning of contaminated surfaces.* In contrast to alabaster, it is possible to use water while cleaning sandstone. Warm water easily cleans the layers of contamination. Chemical products, such as removers, solvents and alcohol, are used to remove paint and grease stains.

2) *Removal of salts from the stone surface.* Sandstone is a porous material. The method of numerous flushing out with distilled water can be applied to remove the salts. [2]

3) *Strengthening.* After the removal of contamination, it is obligatory to strengthen the stone and protect it from the effect of the atmospheric factor. Organosilicon compounds and hydrophobic solution can be used to do this.

4) *Addition of lost fragments.* There are small splits on the sandstone blocks, which can be filled with lime sand mortar with pigments of appropriate stone colour.

4. CONCLUSIONS

There are four ways that show the restoration problems of the gothic alabaster portal of the parish church in Drohobych: 1) disassembling and transportation of the keystone blocks of the portal; 2) numerous secondary additions of different types of alabaster and cement mortars; 3) structure of the stone; 4) portal forming of two types of stone – alabaster and sandstone.

This stage of research studies the recommendations on restoration of the alabaster portal: 1) disassembling of unstable parts of the portal; 2) cleaning of contaminated surfaces; 3) strengthening of the stone; 4) portal waterproofing; 5) reconstruction of the lost portal fragments; 6) application of protective coating. *Sandstone blocks of the portal:* 1) cleaning of contaminated surfaces; 2) stone desalination; 3) strengthening; 4) addition of lost fragments. These recommendations must become a basis for the future development and implementation of the comprehensive programme of restoration.

BIBLIOGRAFIA / REFERENCES

- [1] Галик В. *Дрогобицький архітектор та редактор «Газети Наддніestransriej» Едмунд Леон Остоя Солецький – сучасник і приятель Івана Франка (до історії взаємин й співробітництва)*, Дрогобицький краєзнавчий збірник 2017, спец. вип. 3, 68–81.
- [2] Орленко М. (ред.) *Консервація і реставрація пам'яток архітектури*, Укрзахідпроект-реставрація, Київ–Львів, 1996.
- [3] Свиненко Й.М., Сивий М.Я. *Геологія: Підручник*. К.: Либідь, 2003, 480 с.
- [4] Тимошенко Л. *Опис Дрогобича ХІХ ст.*, Дрогобицький краєзнавчий збірник. 2003, Вип. VII. – Дрогобич: Коло, 552–561.
- [5] Buczek M., Sodelnyk I. *Archidiecezja Lwowska obrządku łacińskiego*. T. 1. Lwów, 2008, 106–111.
- [6] Fototeka Instytutu Historii Sztuki Uniwersytetu Jagiellońskiego, *Portal południowy*. Available from: < <http://www.fototeka.ih.s.uj.edu.pl/navigart/node/22468>>.
- [7] Gątkiewicz F. Kościół w Drohobyczu. Sprawozdanie Dyrekcji C.K. Wyższego Gimnazjum w Drohobyczu za rok szkolny. Drohobycz, 1903, 3–26.
- [8] Gątkiewicz F.Z. Z archiwum Drohobycza. Zbiór przywilejów, aktów granicznych, lustracji, memoriałów itp., Drohobycz, 1906, Nr XVII, p. 49.
- [9] Mściwujewski M.V. *Dwa miecze*. Biuletyn SPZD 2018;22:3–4.
- [10] Solecki-Ostoja E.L. Nasze budowle pamiątkowe w Galicji. – II: Kościół parafialny rz. k. w Drohobyczu (z 2ma litografiami). Wydawnictwo na cele dobroczynne samboskie. Nowa Serja ilustrowana, wydawana nakładem i staraniem G. Kohna (Z zastrzeżeniem praw wydawcy i współpracowników). VIII Rocznik, Przemyśl, 1884–1885, 131–140.
- [11] Trajdos T.M., Zaucha T. Drohobycz miasto królewskie i jego kościoły. Seria A Zeszyt №-3. Warszawa, 2001, 58–61.
- [12] Walczak W., Lopatecki K. Stan badań nad wielokulturowym dziedzictwem dawnej Rzeczypospolitej. Tom 4, Białystok, 2013, 318.
- [13] Zaucha T. Kościół parafialny pw. Wniebowzięcia Najświętszej Panny Marii, Sw. Krzyża i Sw. Bartłomieja w Drohobyczu. Kościoły i klasztory rzymskokatolickie dawnego województwa ruskiego. Materiały do dziejów sztuki sakralnej. Cz. 1. T 6, Kraków, 1998, 31–78.

Abstract

The object of the research is the alabaster portal of the parish church of Assumption of the Virgin Mary, Holy Cross and Bartholomew the Apostle in Drohobych. The portal consists of fourteen separate blocks cut out of alabaster, and only blocks No.1, 2, 13, and 14, which are the results of the previous restoration, cut out of sandstone. Conservation and longevity maintenance leads to the further discussion of the restoration problems. This article covers a range of issues, in particular the scale of the portal and the size of the blocks, which must be disassembled and transported, numerous secondary additions of different types of alabaster and cement mortars; deterioration of structure of the stone and portal forming of two types of stone – alabaster and sandstone. This paper gives a scheme of losses and suggestions for restoration: 1) disassembling of the unstable parts of the portal; 2) cleaning of contaminated surfaces; 3) strengthening of the stone; 4) portal waterproofing; 5) reconstruction of lost portal fragments; 6) application of protective coating. Sandstone blocks of the portal: 1) cleaning of contaminated surfaces; 2) stone desalination; 3) strengthening; 4) addition of lost fragments.

Streszczenie

Przedmiotem badania jest portal alabastrowy kościoła parafialnego pw. Wniebowzięcia NMP, św. Krzyża i św. Bartłomieja w Drohobyczu. Portal składa się z 14 oddzielnych bloków z alabastrem, bloki nr 1–2 oraz 13–14 są wynikiem poprzednich renowacji i są zrobione z piaskowca. Potrzeba zachowania oraz zabezpieczenia długowieczności portalu powoduje aktualność kwestii restauracji. Ten artykuł obejmuje szereg problemów, w tym rozmiar portalu oraz wagę bloków, które trzeba demontować i transportować, liczba wtórnych dodatków różnego rodzaju zapraw cementowych i gipsowych; zniszczenie struktury kamienia i to, że portal składa się z dwóch rodzajów kamienia – alabastru i piaskowca. Podany został również kartogram strat oraz zalecenia do restauracji: 1) demontaż niestabilnych elementów portalu; 2) usuwanie zanieczyszczeń powierzchniowych; 3) wzmocnienie kamienia; 4) hydroizolacja portalu; 5) rekonstrukcja utraconych fragmentów portalu; 6) nałożenie powłoki ochronnej. Bloki portalu z piaskowca: 1) usuwanie zanieczyszczeń powierzchniowych; 2) odsalanie powierzchni kamienia; 3) wzmocnienie; 4) uzupełnienie strat.