Transgas, an important heritage property of postwar architecture

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Keywords: postwar architecture, Transgas, heritage protection

The set of buildings at the very threshold of the Vinohrady area in Prague, in the block under the Český Rozhlas (Czech Broadcasting) building, was built in 1966–1976 according to the design of Ivo Loos, Jindřich Malátek, Jiří Eisenreich, and Václav Aulický. It originally served as a control center for the international gas pipeline. Three unusual structures set into an architecturally designed parterre were intended to be the gateway to Vinohrady and to create a transition from the compact built-up area to the open corridor of Wenceslas Square running under the motorway. Even though this intention was not fully implemented, it became an example of a creative and original architecture in the Transgas complex that has a global quality despite its unfavorable historical context.

In 2015, the owner of the property announced his intention to replace the buildings with an administrative area, causing a great response from the professional and lay public. Debates on whether or not to preserve the buildings are still ongoing today and will be closed with the upcoming decision of the Ministry of Culture. The case of demolition of this endangered structure is thus becoming an important milestone in efforts to preserve Czech postwar architecture, for which preservation is still inadequate and is subject to the prejudices and still insufficient knowledge of the values – of this part of the architectural fund. The case has saddled the heritage preservation community with the task of explaining its quality to the public and increasing efforts to expand the number of postwar buildings protected as cultural monuments.

Illustrations: ***Fig. 1.*** *Photographic documentation of the block beneath Český Rozhlas as seen from Vinohradská Street before the demolitions of the late 1930's and 40's;* ***Fig. 2.*** *Indicative map of Prague in 1938, cutout of the area concerned;* ***Fig. 3.*** *Praha-Vinohrady, Transgas complex, implementation model;* ***Fig. 4.*** *The same, frontal view from Vinohradská Street in the late 1970's;* ***Fig. 5.*** *The same, view from Rubešova Street in the late 1970's;* ***Fig. 6.*** *The same, view of the lower plaza in the late 1970's;* ***Fig. 7.*** *The same, detail of articulated fitting of the dispatching structure;* ***Fig. 8.*** *The same, detail of the facade of the high-rise building. Double pillars of the load bearing structure from atmofix weather resistant steel with overwrought girders, aluminum grid with glass cladding and tunnel passageways between the buildings;* ***Fig. 9.*** *The same, view inside the tunnel passageways – one of the preserved original interior elements;* ***Fig. 10.*** *The same, spiral staircase in the lobby of the office building. It has already been removed;* ***Fig. 11.*** *The same, sketch of the furnishings of the lobby interior. The spiral staircase was originally supposed to surround a sculpture by Vladimír Preclík. At the request of the investor, however, a technicistic simplified version was finally realized;* ***Fig. 12.*** *The same, sketch of the conference room. The motive of steel pipes is applied here as well;* ***Fig. 13.*** *The same, drawing of the front desk and its realization;* ***Fig. 14.*** *The same, bar furnishings.*

Debate on heritage care in the 1960's. Ivo Loos, Jindřich Malátek, and Transgas

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Key words: Jindřich Malátek, Ivo Loos, postwar architecture, theory of architecture and heritage care, Transgas

There is a debate among professionals and lay people in the Czech Republic concerning the value of architecture of the 1960's and 1970's which has parallels in other European countries. In Prague there is a special battle raging for the Transgas complex on Vinohradská Street (1967–1976), designed by architects Ivo Loos (1934–2009) and Jindřich Malátek (1931–1990). This article discusses Loos' and Malátek's texts from the 1960's, largely devoted to the practice of heritage care at the time. Both architects, in their journalistic articles, favored a so-called urban concept of protection of historical cities, a doctrine which wanted to incorporate the heritage fund of Czechoslovakia into society and was in favor of the interventions of the new architecture into the historic environment. In the 1960's, this was opposed by so-called preventive heritage care, whose followers considered the development of historic cities to be completed. Loos and Malátek represented the polemic opposite of this argument. They primarily argued that this vision forced modern architects to use "defensive" architectural forms.

In the 1985 book "The Theory of Municipal Heritage Reservations" (Teorie městských památkových rezervací), Ivo Hlobil explained that we should consider some examples of modern heritage creation, which the theory of the 1960's called a "symbiosis" or "synthesis" of the old and new, as an architectural symbol of the urban concept of the protection of historical cities. These include, for example, the completion of the monastery of St. Agnes in Prague (1964–1977) or the new facade of the church in the Emmaus Monastery in Prague (1965–1968). This article adds the symbiosis of the Transgas complex to these examples.

There is a considerable aversion among the professional staff of Czech institutions of heritage conservation to the symbiotic experiments of the 1960's. This has also appeared in attempts to declare Transgas as a state-protected monument; various civic initiatives, headed by the Old Prague Club, have promoted the declaration of this site as a memorial, while the institutions of state heritage care have torpedoed this effort. The last part of this article discusses how the standpoint of state heritage care has resulted in a professional decline in the case of the Transgas complex.

Illustrations: ***Fig. 1.*** *Olbram Zoubek, engineers and architects Ivo Loos and Jindřich Malátek, 1965;* ***Fig. 2.*** *Miroslav Hudec – Karel Kunca – Jaroslav Stehlík – František Trmač, House "U hradeb" in Prague's Lesser Town, Mostecká Street, 1958-1963;* ***Fig. 3.*** *Josef Hlavatý – Karel Kunca, project of the completion of the St. Agnes Monastery in Prague's Old Town, 1964;* ***Fig. 4.*** *Frantisek Maria Černý, completion of the church at Emmaus in Prague's New Town, 1965–1968;* ***Fig. 5.*** *Bohuslav Fuchs – Kamil Fuchs, Thaya department store in Znojmo, 1969–1972;* ***Fig. 6.*** *Josef Pleskot, plan of the Prague district of Vinohrady;* ***Fig. 7.*** *Ivo Loos – Jindřich Malátek, U Andělky residential complex in Prague-Střešovice, 1968–1972;* ***Fig. 8.*** *The same, unexecuted settlement project of Comenius Square in Litomyšl, 1971;* ***Fig. 9.*** *The same, competition project of operational buildings of the National Theater in Prague, 1962;* ***Figs. 10 and 11.*** *The same, project from the first and second round for the concert hall in Prague at Republic Square, 1965 and 1968;* ***Fig. 12.*** *The same, competition project for the City Hall in Amsterdam, 1967;* ***Fig. 13.*** *Ivo Loos – Jindřich Malátek – Zdenka Aulická – Václav Aulický, competition project for a hotel at Na Poříčí i n Prague, 1969;* ***Fig. 14.*** *Ivo Loos – Jindřich Malátek, competition project for the Kotva department store in Prague at Republic Square, 1969;* ***Figs. 15 and 16.*** *Ivo Loos – Jindřich Malátek – Eva Kmentová – Olbram Zoubek, competition project for the completion of the Old Town Hall in Prague, view from the east and west, 1963;* ***Fig. 17.*** *Jaroslav Fragner, reconstruction of the historic Karolinum building in Prague, 1948–1963;* ***Fig. 18.*** *Ivo Loos – Jindřich Malátek – Jiří Eisenreich – Václav Aulický, project of the Transgas complex in Prague, around 1971;* ***Figs. 19 and 20.*** *Ivo Loos – Jindřich Malátek – Jiří Eisenreich – Václav Aulický, project of the Transgas complex in Prague, around 1971;* ***Fig. 21.*** *The same, Transgas complex in Prague, detail of the bridges the between buildings, 1971–1976.*

Renovation of the Clementinum by Ladislav Machoň: "From a quiet stand of the Theologians there was built a busy warehouse of modern science"

Martina KOUKALOVÁ

Key words: Clementinum, reconstruction, conversion, heritage protection, Ladislav Machoň, Zdeněk Wirth

When, at the beginning of the 1920's, the possibility of building a new building for the University Library in Prague proved to be unrealistic, art historian Zdeněk Wirth, whose competence in the Ministry

of Education included the use of heritage buildings, decided to acquire the entire complex of the Baroque Clementinum and rebuild it. This was based on the rational reasoning that it could not be maintained and repaired without its meaningful use in the conditions of the new Czechoslovak Republic.

Adaptation of the Clementinum took place in five stages and lasted more than a quarter century (1923–1951). It was carried out by architect Ladislav Machoň under Wirth's professional supervision. In order for the extensive complex of the former Jesuit college to permit complicated library operations, there was a need for relatively large interventions into the building structure. At the same time, the architect had to respect the original art value of the monument, and the only new building could be the reading room. All artistically valuable interiors were only to be restored. Machoň – according to his own words – had to respect the spirit of the monument, but also to supplement it with modern architectural expression so as to create a unified whole. Machoň's renovation was appreciated not only by its co-creator and supporter of the conservation method, Zdeněk Wirth, but also by the champion of historical synthesis, art historian Václav Wagner. The adaptation of the Clementinum, alongside the Prague Castle and Černín Palace, became one of a trio of model interwar reconstructions.

Despite the fact that Machoň's adaptation was met with legitimate criticism, especially due to the historically problematic reconstruction of the eastern wing for the purpose of the technical library (1931–1932), the architect succeeded in creating a distinctive art layer which became the next development stage of the Clementinum. Contemporary heritage care unfortunately considers Machoň's intervention to be a mere utilitarian adaptation which, under the ongoing reconstruction, does not deserve protection.

Illustrations: ***Fig. 1.*** *Ladislav Machoň, overall plan of the Clementinum. Condition as of 1932;* ***Fig. 2.*** *Renovation of the northeast tract of the Clementinum, about 1924;* ***Fig. 3.*** *Architect Ladislav Machoň (first left) and Director Jaromír Borecký (third from left) during an inspection on the construction of the library, about 1924;* ***Fig. 4.*** *Building of the archaeological institute on the large courtyard which succumbed to the new reading room, about 1925;* ***Fig. 5.*** *Ladislav Machoň, perspective view of the new reading room building, 1925;* ***Fig. 6.*** *The only new building in the Clementinum complex became the reading room, 1929;* ***Fig. 7.*** *View onto the saddle skylights of the reading room and horizontal mansards illuminating the attic storerooms, 1929;* ***Fig. 8.*** *Entrance vestibule of the library with cloakroom and upper lighting, 1929;* ***Fig. 9.*** *Ladislav Machoň, perspective of the reading room, 1925;* ***Fig. 10.*** *Interior of the new reading room intended for 260 readers, 1929;* ***Fig. 11.*** *The newly glazed arcade corridor retained its optical interconnection with the vineyard courtyard, 1929;* ***Fig. 12.*** *The former refectory was adapted into a special reading room, 1929;* ***Fig. 13.*** *The magazine reading room was located in the winter refectory, 1929;* ***Fig. 14.*** *The room of the volume catalog and administrative office, 1929;* ***Fig. 15.*** *Ladislav Machoň, plan for the technical furnishings of the university library in the Clementinum. Design of the Lippman iron shelf system, 1925;* ***Fig. 16.*** *Interior of the book storeroom, 1929;* ***Fig. 17.*** *Installation of fireproof storerooms in the attics of the university library, 1929;* ***Fig. 18.*** *Ladislav Machoň, original condition of the technical library wing in the Clementinum, 1930;* ***Fig. 19.*** *Ladislav Machoň, adaptation of the eastern wing of the Clementinum for the technical library, 1933;* ***Fig. 20.*** *View of the demolished eastern wing of the Clementinum intended for the technical library, 1931;* ***Fig. 21.*** *Entrance Hall of the technical library with cloakroom, 1933;* ***Fig. 22.*** *Central area of the technical library with loaning counter, 1933;* ***Fig. 23.*** *Staircase hall in the technical library with load-bearing construction, 1933;* ***Fig. 24.*** *Main reading room of the technical library on the site of the former Jesuit theater with original painted ceiling, 1933;* ***Fig. 25.*** *The area of the card catalog of the technical library with promenade, 1933.*

The recent renovation of the interior paintings of the Convent Church of the Birth of the Virgin Mary in Želiv

Martin ŠANDA

Keywords: Želiv, Jan Blažej Santini-Aichel, monument renovation, restoration, interior colors

A total reconstruction of the interior and exterior of the Convent Church in Želiv (Pelhřimov district) took place in 2015–2016. The reconstruction also included renovation of the interior painting, which this article primarily focuses on because it was the most problematic part of the otherwise successful reconstruction.

The original medieval church was significantly renovated in the Early Baroque period and subsequently, after a fire in 1712, rebuilt according to the design of Jan Blažej Santini-Aichel. The course of construction of the church and its subsequent furnishing is illustrated to us by archive sources which also present two later renovations of the interior paintings from 1884–1885 and 1917–1918. The appearance from the second stage, carried out based on the design of Beuron Benedictine Pantaleon Major, has been retained in the interior until the recent reconstruction in which the interior of the building was made monochrome with a white warm ocher, which is supposed to be the original Baroque color scheme according to the conclusions of the restoration survey.

Two older partial restoration surveys, carried out in 2002 and 2007, offer a different idea of the Baroque color scheme. According to their conclusions, the original color scheme included two shades of gray. The probe, however, also recorded a green layer on the architectural elements and even the use of red paint on one element. A multicolored design using green and ocher was also surveyed in 2015, but this was judged to be a later layer. The most important finding is that none of the restoration surveys, or the corresponding reports on the restoration, fulfill the idea of how a similar document should look. The texts of the reports are too concise and inaccurately formulated, their attachments contain an insufficient amount of photo documentation, and so on.

A comparison with other realizations by Jan Blažej Santini-Aichl convincingly shows that in places where the original color scheme was known, it was always a multicolored design, very often incorporating a green coat on architectural elements. A critical analysis of the restoration reports shows that a similar multicolored solution was apparently used by Santini in Želiv, and the restoration survey and the consequent renovation of the original painting was reconstructed erroneously. The true form of the original color scheme can not be determined on the basis of the surveys conducted.

This entire case affects not only one specific valuable heritage structure – it reveals certain other more general problems in approaches to important heritage renovations.

Illustrations: ***Fig. 1.*** *Želiv, monastery complex, view of the large courtyard from the southwest;* ***Fig. 2.*** *Želiv monastery Church of the Birth of the Virgin Mary, view of the main façade, late 19th century;* ***Fig. 3.*** *Graphical view of the Želiv monastery from the southwest before 1839, A. Juhn and G. Döbler;* ***Figs. 4–15.*** *Images from the interior of the monastery church in Želiv:* ***Fig. 4.*** *Historical photo, early 20th century;* ***Fig. 5.*** *Overall view from the west, condition after reconstruction;* ***Fig. 6.*** *View onto the presbytery vaults, condition before reconstruction;* ***Fig. 7.*** *Restoration probe from 2002 in the nave, on the walled pillar there is visible the older green and ocher paint, other areas containing the original fresco decoration seem almost devoid of an older colored paint layer;* ***Fig. 8.*** *Image from restoration probes of 2002 in the presbytery; the probe show the quite damaged ornamental painting from 1918;* ***Fig. 9.*** *Restoration probe in the nave at the conjunction of the walled pillar and wall; the probes show a light ocher color scheme, probably from 1917, and older green coatings on walled pillars;* ***Fig. 10.*** *Band probe from 2007 in a niche in the west wall with red paint;* ***Fig. 11.*** *Consecrational cross, probably from 1884–1885, under it is evidently a Baroque painted wreath;* ***Fig. 12.*** *Painted baldachin canopy preserved in the site of the side altar of the inter-nave arcade;* ***Fig. 13.*** *Probe from 2015 in the vault of the presbytery, complete (**13a**) and detail (**13b**);* ***Fig. 14.*** *Probe from 2015 in the bottom of the presbytery;* ***Fig. 15.*** *Microphotography of the cross section of the sample from the nave wall, 2015;* ***Fig. 16.*** *Žďár nad Sazavou, former*

monastery Church of the Assumption of the Virgin Mary and St. Nicholas with renewed Baroque colors, view to the west into the nave; ***Fig. 17****. Kladruby, former monastery Church of the Assumption of the Virgin Mary, St. Wolfgang, and St. Benedict, vaulting of the side aisle, Baroque color scheme restored probably during the First Republic;* ***Fig. 18****. Žďár nad Sazavou, pilgrimage Church of St. John of Nepomuk on Zelená Hora, view into the copula with restored Baroque (?) color scheme;* ***Figs. 19 and 20****. Želiv, convent Church of the Assumption of the Virgin Mary, view onto the vaulting, comparison of the situation before and after the reconstruction,* ***Fig. 21****. Želiv, convent Church of the Birth of the Virgin Mary, detail of the vaulting of the nave before reconstruction.*

The newly discovered medieval wall paintings in the Kunštát castle

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Keywords: Kunštát castle, medieval wall paintings, historical and architectural survey, interdisciplinary restoration research

One of the stages of the historical and architectural survey focused on the areas of the current third storey of the west wing, whose mass conceals the medieval walls of the fortification castle, revealed hewn stone corner brackets and tapered vault ribs in the present-day room no. 303 at the end of 2015, bearing witness to what was once a glorious Gothic space. Probes were followed by a restoration stratigraphic survey which revealed medieval wall figurative paintings under later layers of plaster. Work began on the overall heritage restoration of the room at the beginning of 2016 and ended with making the paintings accessible to the public in the first half of 2017.

The history of the Kunštát castle is inextricably linked with the Lords of Kunštát, the first known ancestor of whom is considered to be Gerhard of Zbraslavi († around 1241). We can assume that he received territory from Václav I upon which, during the 1260's, his youngest son Kuna I (first mentioned in 1250), the burgrave at the royal castles of Veveří and Vranov, the chamberlain of Brno, Marshal of Moravia and chamberlain of Olomouc, built the castle as his own representative family seat. Older historiography dated the castle's foundation to the late 1270's, to the time when Kuna first appears with the family name of Kunštát. Newer research on the foundation, on the other hand, moves the date to the first half of the 13th century. According to the results of an intensive historical and architectural survey that has taken place in the castle since 2005, we can say that the hitherto oldest proven building phase of the castle supports the period from 1264 to 1266. The most significant owner of the castle in the first half of the 14th century, when this mural cycle was created, was Gerhard of Kunštát, who twice held the office of chamberlain of Brno and Znojmo.

The paintings are located on the second floor of the medieval palace, adjacent to the western section of the fortification wall. The survey has conclusively proven that at its oldest stage the palace held at least three spaces. Probably until the end of the 13th century, the layout was on the ground floor and the first floor had a flat ceiling. On the level of the 1st floor, the horizontal communication was provided by the gallery which in the initial phase was mounted on wooden beams. The rooms with the wall paintings are directly associated with the ground plan of the southern part of the palace. More than half of the preserved medieval paintings are on all four walls.
In the corners, hewn parts of a cross ribbed vault have been preserved, supported by brackets whose original profile can not be determined. The room is now vaulted with brick.

The survey allowed for the identification of four construction stages. The first phase includes the peripheral masonry and fragments of the ribbed vault. The masonry is demonstrably integrally related to the preserved fragments of the brackets and parts of the aforementioned vault. Restoration research has shown that the two-layer plaster on the quarry-stone wall is primary. Both layers have the same material composition, and it is likely that the time gap between the construction of the 2nd floor of the castle and the origin of the paintings is very short. It can be assumed that the relevant part of the 2nd floor of the palace originated in a wider range during the first half of the 14th century.
In the second phase, connected with the conversion of the castle to a chateau at the end of the 17th century, the ribbed vaulting was removed and replaced by today's unpreserved beam-ramp ceiling construction. The third phase can be combined with the reconstruction of the 2nd floor of the castle in the last decade of the 18th century, when the beam ceiling was replaced by the existing brick vaulting. The fourth phase was associated with a partial modification of the room after 1901, when the Baroque window niche in the western wall was modified to serve as an entrance to the newly established balcony.

The interdisciplinary restoration research was mainly focused on the wall painting, beginning mainly by non-invasive methods of exploration. The first part of the survey (non-invasive screening of the work) involved the detection of the structure of the painting examined in different spectral regions (UV, IR, XRF). False colors (FC) were used for imaging. Based on the macroscopic survey and confrontation of analytical data from each image an analysis of the structure of the work was carried out, involving a study of the characteristic features of painter expression (drawing, underdrawing, modeling, secondary interventions, etc.) and an approximate analysis of the material composition. The results allowed for drawing documentation to be made and, at the end of the survey, a computer color reintegration of the paintings as well. This also allowed for the compilation of a stratigraphic overview of the construction of the work and the materials used. A separate part consisted of a comparative material survey of medieval and modern constructional binders which contributed to the evaluation of the individual building phases. Together with the historical and architectural survey and salvage archaeological research, surveys were made of selected structures, some being dated archaeometrically using dendrochronology and thermoluminescence. Experimental research of the masonry was also conducted using advanced non-invasive techniques – georadar, infrared thermography, and video scopes. The material characterization of the masonry was completed by a petrographic analysis of the stones. The masonry of the room is made up of a dark quarry stone with a slightly irregular face, stacked with an intention to correspond, and shows no noticeable structural inconsistency in the building development.
The sandstone from which emerged the original stone articles were most likely made was mined near Kunštát.

The painting has been preserved at an estimated 50 % of its original whole. The changes made to the work can be divided into two groups. The first group is the preserved area of painting interrupted by secondary walls and newly made orifices, the removal of the gothic vaulting, the removal or disturbance of the medieval vaults, the raising of the floor level, and the creation of a stove niche. The second group of changes consists of damage to the plaster and color layers, especially dense chipping and static cracks.

The oldest plaster can be characterized as very high quality and compact. The substrate for the wall painting consists of a two-layered interlocking plaster system composed of a bottom and a top layer of plaster of varying strength separated by a lime coat, on the surface of which very fine dark animal hairs are visible. The plaster binder is based on dolomitic hydraulic lime with a specifically increased content of magnesium carbonate. Near-infrared (NIR) images contributed to a better orientation in the structure of the gradual construction of the painting. The brush drawing in this case fulfills two relatively different but closely related roles. In some parts it presents the basic compositional layout and is subsequently overlaid with the color layer, while in other places it functions as a full-fledged

element of the painter's expression (morphology).

The spectrum of pigments used in the wall painting does not deviate from the historical context. The red pigments, representing the most varied group of substances, were identified as red clay, ferrite red, cinobr, minium, and another unspecified red dye. The blue pigments are represented by natural azure in blue and turquoise shades, and white pigments are represented by lead white and calcium carbonate. Other pigments identified include a carbon black of plant origin and yellow clay. The background of the scenes is made up of a lower black layer on which a transparent layer of blue azure was applied.

The construction of the work is stratigraphically simple, in which two color layers were applied in most cases. The absence of engraved artwork and daypieces, as well as the presence of a borderline on the surface of the plaster, indicate that the painting was executed on a dry mature plaster and excludes an initial fresco technique painting. A survey of the components of the colored layer revealed a binder based on dolomitic hydraulic lime blended with a protein component (casein). The technique can be assigned to a broader group of lime techniques based on the German designation Kalkmalerei.

The Gothic painting covers four walls and is composed of horizontal continuous bands of about 80 cm height, divided by a double band 17 cm wide. The continuous bands, filled with figural scenes and architecture, are not further divided by vertical strips, only with this function being filled in some places by a throne or architectural element. Part of the wall decoration consists of painted blocks of the entrance and window niches in the north and west walls. To date, no inscriptions have been preserved in the painting, the occurrence of which could be assumed, for example, in strips that divide the scenes. The painting can be characterized as profane with an emphasis on royal symbolism and battle scenes. Although there is no wider consensus on the date and theme of the paintings, it is now possible to place the work among extraordinary discoveries recently discovered.

Illustrations: All images relate to the Kunštát Castle. ***Fig. 1.*** *The castle on an imperial print of a stable register map from 1826;* ***Fig. 2.*** *Aerial view of the castle from the northeast;* ***Fig. 3.*** *Layout of the first floor of the upper castle (the room in question is designated by numeral 303);* ***Fig. 4.*** *Vertical cross section of the upper castle with a view to the east;* ***Fig. 5.*** *On the left is a view of the courtyard facade of the castle palace, on the right is a detail of the articulation of the entrance portal and window on the upper floor;* ***Fig. 6.*** *On the left is a view into room no. 110 on the ground floor of the medieval palace, on the right is a detail of the lintel of the original window niche with a beam, placed in the original inner wall face of the courtyard;* ***Fig. 7.*** *View onto the court (east) wall of room no. 201 which is located in the mezzanine under the room with the murals;* ***Fig. 8.*** *Detail of the hewn corner bracket and part of ribs of the original gothic arch in room no. 303. The plaster with paintings are adjacent to the architectural element (before restoration);* ***Fig. 9.*** *Detail of a fragment of the pear jamb profile, secondarily stored in the masonry of the southern soffit of the entrance from the room to the staircase;* ***Fig. 10.*** *Overall view of room no. 303 with discovered murals, after renovation;* ***Fig. 11.*** *Color hypsometry of the western wall of room no. 303;* ***Fig. 12.*** *3D model of room no. 303;* ***Fig. 13.*** *Scheme of noninvasive screening using imaging/radiographic methods;* ***Fig. 14.*** *Thermograms of the east wall of room no. 303;* ***Fig. 15.*** *Niche of a window opening on the western side of room no. 303 – videoscope of the medieval arches;* ***Figs. 16–18.*** *Scenes from the individual walls of room no. 303 (S4-A, J3-A, V3-A) photographed in different fields of spectral light. On the left is the image in visible light, on the right in ultraviolet fluorescence;* ***Fig. 19.*** *Drawn studies of the scenes J3-A (top) and J4-A (below) from the south wall of room no. 303;* ***Fig. 20.*** *Room no. 303, structure of the medieval plaster with paintings. On the left is an image of the structure of the plaster with an elemental map (polished sharpened image from a scanning electron microscope), on the right is a macro-image of the mortar structure, digital microscope Keyence VHX 900-F, magnified 30 times;* ***Fig. 21.*** *East side of room no. 303 (scene V2-A). The Cyan azurite with accompanying mineral langit, macro-images at different illumination;* ***Figs. 22–25.*** *Room no. 303 with wall paintings, view of the north (S), south (J), eastern (V) and western (Z) wall with marked scenes.*

Contemporary borders. The archaeological potential of research on state borders and the borderlands of former Czechoslovakia

Michal BUREŠ; Michal RAK; Lukáš FUNK; Martin TOMÁŠEK

Key words: recent archeology, borderland, postwar expulsion of German inhabitants

Enthusiastic preparations for the protection of the state border in the later 1930's which ended with the ignominious resignation of the borderlands to the aggressor; the expulsion of the German national population and the subsequent attempt to resettle the borderlands which failed and led to its mass depopulation; the construction of a border surveillance system claimed to be directed against an external enemy but actually directed towards its own population – these are the neuralgic points of contemporary Czech history. Despite these being ultimately unpleasant memories, or perhaps because of it, they tend to be overlooked and forgotten at least in certain aspects, and the archaeological method is becoming one of the appropriate methods of exploring them.

The schematic map in Fig. 13 shows the settlement of the Novohradské mountains and foothills before and after World War II. The state border with Austria is represented by the bold dotted line in the south, while the thin dotted line defines the examined area from the inland. Although the map shows a clearly low density of settlements in the border area, this is given by higher altitudes and a high degree of afforestation. The increasing number of settlements on the actual border with Austria, in the later forbidden zone, is due to the connection of this border area to the agricultural territories of the Austrian side of the Novohradské mountains. The map in the following Fig. 14 shows the condition in about 1952, when the engineered barriers that made up the "iron curtain" were installed along the border, represented on the map by a thin red line. The next map in Fig. 15 documents the markedly sparse network of settlements around the year 1958. In the forbidden zone (i.e. in the area between the actual state border and the engineered technical barriers) and the border zone (the inland area immediately adjacent to the technical engineered barriers), all settlements disappeared, which could lead to the erroneous impression that these settlements disappeared mainly in the areas right next to the borders. This notion of settlement apparently corresponds to the generally surviving view that after the expulsion of the Germans, the villages at the borders were not resettled and were subsequently demolished so that the area would be easier to monitor in terms of military control of the movement of "undesirable persons". A closer study of the map clearly shows that a number of settlements disappeared in the inlands as well. Settlements became extinct to a comparable degree in the areas both directly next to the border and further inland. Depopulation occurred in different areas at different periods and for different reasons. The expulsion of the German national population was not the determinant factor which led to the definitive abandonment of settlements and the change of the landscape, but only one of several such factors. Many villages and settlements inland of the border but especially along the border itself were resettled. Even though the postwar migrants had differing patterns of migration, it may be presumed that in some places, particularly in the border areas with more favorable conditions for a lasting life, migration would cease and stabilize as it did in a number of inland areas. Before such stabilization could take place, however, the "forbidden zone" was established between 1951 and 1952 and was fortified on the inland side by engineered high-voltage barriers. The inhabited villages that lay within the forbidden zone were forcibly displaced. The construction of technical engineering barriers in the first half of the 1970's was no longer associated with the displacement of the population. The second-generation line

of engineered barriers (Fig. 16) led along the border of what was the populated area at the time.
The inland area of the monitored region was subject to different developments. Even though there were considerably less inhabitants than the original population, archaeological research shows that most of the agricultural settlements were resettled.
In villages with a compact nucleus, as well as in settlements with more scattered agricultural buildings, research has confirmed that only some farmhouses were settled depending on the degree to which the new settlers were allocated more land than what had originally belonged to the individual farmhouses. In scattered areas as well as the compact nuclei, larger farmhouses with courtyards and with more advantageous locations were resettled first, while individual houses and cottages were left to gradually dilapidate. After 1948, however, the land was gradually confiscated from the new agricultural settlers, and agriculture was collectivized. Without their own land, the possibility of making a decent living, without having to depend on the dubious performance of other co-operatives, diminished. The best farmers, for whom the agricultural land was the main reason for coming, moved away when this land was confiscated. The progressive wave of socialization resulted in a decline in crafts and local services. The exodus of the most large-scale agriculturalists caused another wave of internal migration. The residents who remained then abandoned their newly resettled farmhouses and moved into the buildings that had been left empty by the exodus of the agriculturalists, which were in better technical and constructional condition. Some of these larger farmhouse estates often became the headquarters, usually temporarily but sometimes permanently, of the JZD agricultural cooperatives, later of the State-owned Farms (Státní statky). The Tachov area, as the hitherto best documented West Bohemian region, represents all the features of postwar changes that have been mentioned so far. There were 29 villages that disappeared here (with more than 10 large farmhouses) as well as 41 smaller settlements. In addition, virtually all mills became extinct, as did sawmills, hammer mills, glass engraving facilities, and the entire spectrum of the area's underlying economic structure with over 100 other buildings (game warden residences, knackeries, brick factories, pubs, etc.). The density of settlements never returned to as it was before 1945, and it was also heavily influenced by the construction of the technical engineering barriers and the creation of border and forbidden zones.

A survey of these extinct border settlements has shown that the extinction of human settlements throughout the entire area of the Novohradské mountains and foothills can not be unequivocally associated solely with the expulsion of the German national population nor solely with the establishment of technical engineering barriers along the state border and the creation of the forbidden zone. Changes in economic conditions, in particular the collectivization of agriculture and the disappearance of small trades which led to the gradual disappearance of a usable infrastructure, also played a role. All this led to a long-term phenomenon of depopulation that has still not been reversed. During the period of the centrally directed economy, the non-use of the potential of a territory whose economic benefits were still well remembered signified a considerable political problem that had to be ideologically justified and practically disguised. The establishment of a forbidden and border zone would have been useful in concealing this major political failure. The impoverished borderlands had to be hidden from enemies from abroad and within, both of whom could use it in "hostile" propaganda. The destruction and demolition of structures after 1951 was the most common way to render extinct the human dwellings affected by depopulation. The structures to be first demolished were either those that were visible from settlements in the Austrian border areas, or unoccupied and dilapidated buildings in partially inhabited villages. This resulted in either completely empty areas, or entire complete villages that were close to settlements or were visible from a functional village or from some roadway used by the civilian population. On the other hand, structures that were inaccessible and not visible to a domestic or foreign civilian observer were left to gradually dilapidate. There are exceptions, of course, or cases where the degree of visibility is difficult to judge today. The unspoken objective of communist propaganda – to manipulate historical consciousness and let the memory of the living border areas disappear into oblivion – succeeded almost without exception.

Illustrations: ***Fig. 1.*** *Pohoří na Šumavě (Puchers), abandoned houses Nos. 14 and 86 in the center of the extinct village after the forbidden zone was opened. Before 1945, house No. 14 held a basic grocery store and a gendarmery station, while No. 86 held a postal office;* ***Fig. 2.*** *The same, a recreational home built in the first decade of the 21st century on the ruins of the extinct houses;* ***Fig. 3.*** *Drochov (Drochersdorf), extinct farmhouse;* ***Figs. 4 and 5.*** *Polžov (Pilsenschlag), aerial photograph of the village in 1947 and 1967;* ***Fig. 6.*** *Schwartzviertel, example of a farmhouse demolished by a single partial destruction;* ***Fig. 7.*** *Staré Šance (Schanz), houses along the roadway to Freistadt, mostly demolished by single partial destruction;* ***Fig. 8.*** *Mikulov (Böhmdorf), view onto part A of the extinct village, before 1945;* ***Fig. 9.*** *The same, the destroyed farmhouse in Part A of the extinct village with remnants left in place (2011);* ***Fig. 10.*** *Nové Šance (Neu Schanz), total destruction of farmhouse No. 102 with remnants left in place and piled into an embankment;* ***Fig. 11.*** *Lhota (Neustift), a pile of building stones near the extinct house illustrates the extraction of building materials from the demolition of buildings;* ***Fig. 12.*** *Description, schematic drawing, and symbols for the individual phases of a building's extinction. This descriptive system was created for the research of villages that disappeared after 1945 in the Tachov area;* ***Fig. 13.*** *Settlement of the Novohradské mountains and foothills in around 1945;* ***Fig. 14.*** *Settlement of the Novohradské mountains divided by the first generation engineered technical barriers (thin solid red line) in about 1952;* ***Fig. 15.*** *Settlement of the Novohradské mountains and foothills in about 1958 (the thin solid red line marks the first generation engineered technical barriers);* ***Fig. 16.*** *Settlement of the Novohradské mountains and foothills during the shift of the boundaries of the forbidden zone and engineered technical barriers further inland (thin solid blue line);* ***Fig. 17.*** *Lhota (Neustift), aerial photograph from 1952;* ***Fig. 18.*** *Observation bunker for border guards, built into the embankment of a non-functional path in the rural village of Lhota;* ***Fig. 19.*** *Regulation of the Malše River with concrete pavement used for guarding the state border near the defunct village of Lhota (Neustift) and the village of Leopoldschlag Markt on the other side of the border;* ***Fig. 20.*** *Žofín (Sofienschloss), hunting lodge used by the Czechoslovak People's Army during the demolition process of the first half of the 1980's;* ***Fig. 21.*** *Pohoří na Šumavě (Puchers), a fragment of a monument built to commemorate the 25th anniversary of the Border Guard and the 55th anniversary of the founding of the Communist Party of Czechoslovakia;* ***Fig. 22.*** *Overview map of extinct villages of the Karlovy Vary and Plzeň regions;* ***Fig. 23.*** *Bažantov (Wosant), comparative map showing the current state of preservation of buildings, condition in 1958, and dating the extinction of some of them using dendrochronology of living trees;* ***Fig. 24.*** *Line of the first generation engineered technical barriers in the immediate vicinity of the village of Dolní Příbraní (Unter Sinetschlag) in the land register of the same name;* ***Fig. 25.*** *Lines of the first generation (red line) and second generation (blue line) of engineered technical barriers in the Pohoří na Šumavě area in the land register of the same name;* ***Fig. 26.*** *Lines of the first generation (red line) and second generation (blue line) of engineered technical barriers in the area of the extinct village of Lukov (Luggau) and Nová Huť (Neuhütten);* ***Fig. 27.*** *Isolator as a relic of the first generation engineered technical barriers of the 1950's in the Pohoří na Šumavě land register;* ***Fig. 28.*** *Concrete anti-vehicle pyramids were used mostly for blocking field and forest roads leading e.g. through engineered technical barriers;* ***Fig. 29.*** *Well-preserved remains of a firing bunker of type KŽ-1 VEČ 945, constructed in 1959 along the route of the electronic wire obstacles as part of the local defense point of the Border Guard in the section between Cetviny and Svatý Kámen;* ***Fig. 30.*** *Satellite image of the extinct village of Lukov (Luggau) and Nová Huť (Neuhütten). The red arrows indicate vegetation signs of the former second generation engineering technical barriers while the black arrows indicate the first generation barriers;* ***Fig. 31.*** *Lidar image of the extinct village of Lukov (Luggau) and Nová Huť (Neuhütten). The red arrows indicate vegetation*

signs of the former second generation engineering technical barriers while the black arrows indicate the first generation barriers; ***Fig. 32.*** *Aerial archive photos of the Tachov area. The picture shows the company Stoupa at Stará Knížecí Huť in 1985;* ***Fig. 33.*** *Dilapidated firing bunker made of precast concrete at the defense line near former Pavlův Studenec;* ***Fig. 34.*** *The largest structure of field fortifications in Pavlův Studenec;* ***Fig. 35.*** *North of Jedlina, a second phase fence enters the forest, the original line of which is highlighted by young trees;* ***Fig. 36.*** *Landscape of the Cold War around the extinct village of Jedlina;* ***Fig. 37.*** *Abandoned shooting range building in Dolní Příbraní;* ***Fig. 38.*** *Present-day Hotel Jelení vyhlídka, rebuilt from the former shooting range building in Dolní Příbraní.*

Sound-generating factors of the instruments of the Brno and Loket organ school. An example of applying new concepts and approaches in organ heritage care

Petr KOUKAL

Keywords: Brno and Loket organ school, organ heritage care, sound-making factors, morphology of cores in metal organ flue pipes, intangible heritage

Organ heritage care has long been maintained and evolved in developed countries, evolving as if out of the mainstream of official conservation theory. One of the reasons for this is given by Walter Supper, according to whom this is the most complicated area of all of heritage theory and care. The introductory part of the text therefore provides a look at the development and current situation of organ heritage care, where the greatest emphasis is placed on the documentation, protection, and recovery of the audio part of the organ. As part of this, new concepts are emerging, such as sound heritage and sound-making factors which help to better document and understand the essence of historical organs as heritage properties. The text addresses an important issue of newer heritage practice – it points to the problem of the conservationist approach ("gewachesener Zustand") when restoring the organ. Another topic is the framework evaluation of hither to documentation guidelines for historical organs used in heritage care. On these bases, the author explains the need to focus on overlooked sound-generating factors. A typical example is the as-yet undocumented and unresolved issue of forms for the metal flue pipes. The article presents survey results which support the hypothesis of a separate method of working and of the sound ideals of masters of the Loket and Brno organ schools, apparently different from other period workshops.

Illustrations: ***Fig. 1.*** *A side schematic of a flue pipe core;* ***Fig. 2.*** *Schematic of flue pipe core morphology;* ***Fig. 3.*** *X-ray of the core of a flue pipe by František Svítil the elder (side view);* ***Fig. 4.*** *X-ray of the core of a flue pipe by Martin Šašek (side view);* ***Fig. 5.*** *Kladruby u Stříbra. Form for the core of a flue pipe Quintadena 8';* ***Fig. 6.*** *Manětín – castle church. Form for the core of a flue pipe Quintadena 8';* ***Fig. 7.*** *Bochov. Form for the core of Octavbass flue pipe;* ***Fig. 8.*** *Polná. Form for a core;* ***Fig. 9.*** *Znojmo-Louka. Core without form;* ***Fig. 10.*** *Český Krumlov. Core without form.*

The Sokolovna as a phenomenon of Gesamtkunstwerk

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Keywords: Miroslav Tyrš, convergence law, Sokolovna, Gesamtkunstwerk, National Theater

Sokolovnas, or Sokol houses, create a separate independent group inside the art history debate. The Sokol ideology, which continues on the achievements of the Czech national resurgence, is reflected in the visual forms of Sokolovnas and in the functionality of these very buildings. Through an analysis of various cultural areas (which indicate efforts representing Czech national pride and identity in the second half of 19th century), the author attempts to find common aspects of how this was used by all types of art. We can understand Gesamtkunstwerk (interconnection and cooperation of all kinds of art) as the direct equivalent of the efforts of this period to create a functional narrative unity. The author of this essay tries to explain Gesamtkunstwerk not just as a phenomenon of art history, but also as one of many aspects of creating life, representing the values of society for those times. The entire essay is related to the Miroslav Tyrš, who was not only founder of the Sokol, but also a philosopher, esthetician, and art historian. Miroslav Tyrš, however, also endeavored to enlighten society. With an analysis of Tyrš's theory of convergence law (compared to Wagner's theory of Gesamtkunstwerk), the author of this essay describes how Tyrš influenced the decoration of the Czech National Theatre in comparison to his influence of the visual forms of the first Sokolovnas.

Illustrations: ***Fig. 1.*** *Prague-New Town, the first Prague Sokol, present appearance of Fügner Hall;* ***Fig. 2.*** *Josef Kočí, ritual unfurling of the first Sokol battalion, 1926;* ***Figs. 3.*** *Prague-New Town, the first Prague Sokol, current form of Tyrš Hall;* ***Fig. 4.*** *Ibid, period photograph of exterior;* ***Fig. 5.*** *Ibid, exterior appearance in 2012;* ***Fig. 6.*** *Ibid, period photograph of interior;* ***Figs. 7–9.*** *Český Brod, Sokolovna on period postcards, around 1900;* ***Fig. 10.*** *Ibid, Sokolovna after reconstruction of facade, October 2016;* ***Figs. 11–14.*** *Vysoké Mýto, period photographs and drawing of the Sokolovna;* ***Figs. 15 and 16.*** *Ibid, current state of interior paintings;* ***Fig. 17.*** *Ing. arch. Vladimír Balda, axonometry of the current state of the Sokolovna in Vysoké Mýto;* ***Fig. 18.*** *Ing. arch. Vladimír Balda, axonometry of the new proposed state of the Sokolovna;* ***Fig. 19.*** *Ing. arch. Vladimír Balda, view onto the proposed form of the extension of the Sokolovna.*

Removal of mineral oils from the surface of inorganic materials using aqueous microemulsions

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Keywords: cleaning, oil microemulsion, tiles

The removal of impurities containing mineral oils from the surface of tiles or plaster is often one of necessary steps taken in the rehabilitation of historic buildings. Oily dirt is not only an aesthetic problem, but it also reduces the possibilities for further surface treatments (paint, penetration, etc.). The water repellent character of these impurities virtually eliminates merely washing it with water. The use of organic solvents alone not only poses a fire hazard but also presents health risks to the implementing personnel and the risk of environmental pollution. Aqueous microemulsions containing a small amount of organic solvents are an effective cleaning agent in such cases. The article summarizes the experience with the successful use of microemulsions differing by the type of surfactant (anionic SDS and nonionic Tween 20) and solvent (xylene, cyclohexane) in the removal of impurities containing mineral oils from the surface of fired tile and terrazzo tiles.

Illustrations: ***Fig. 1.*** *The infrared spectrum of oily impurities on fired tile and of clean hydraulic oil Paramo HM 46;* ***Fig. 2.*** *The infrared spectrum of oily impurities on terrazzo tile, cable oils Mogul M 300 and rosin;* ***Fig. 3.*** *Condition of fired tiles before cleaning;* ***Fig. 4.*** *Fired tiles with tile saturated by microemulsion;* ***Fig. 5.*** *Condition of a fired tile after cleaning;* ***Fig. 6.*** *Fired tiles, microphotograph of the surface before cleaning;* ***Fig. 7.*** *Fired tiles, microphotograph of the surface after cleaning;* ***Fig. 8.*** *Condition of a terrazzo tile before cleaning;* ***Fig. 9.*** *Condition of a terrazzo tile after cleaning;* ***Fig. 10.*** *Infrared spectrum of surface of a terrazzo tile before and after cleaning.*