Abstract. Architectural and archaeological studies of preserved architectural monuments emphasise the continuity of development, succession, and originality of the culture of each nation. The research aims to highlight the results of architectural and archaeological surveys at the foundations of the wooden architectural monument – the Church of the Exaltation of the Holy Cross in Drohobych, as well as to develop the hypothesis of the city’s urban genesis. According to the analysis of literary sources, seven construction periods have been identified since the church was built in 1613. The sounding method showed that the first foundations were standards, which were installed in pits on the cut surface of the continent, often with stone slabs, and covered with soil. The system of double slabs fixed under the altar crown of the log house is considered archaic. During the third and fourth construction periods, some of the stands were replaced, and a stone foundation supported by a wide base of slabs was built under the northwestern corner of the main log cabin. In 1823, the altar log cabin and the southern façade of the building were supported by a ribbon structure of stone foundations. No banded foundations were found under the western base of the chancel and the northern base of the nave. The lower gallery of the nineteenth and early twentieth centuries is supported by a system of foundations and smaller stands. Within the fourth probe, a deep archaeological site was localised with a ceramic sherd in the fill dating to the princely period. The analysis of several features and stratigraphic features of the fill gives grounds to interpret the object as the remains of a semi-hut of this period. Based on the location of the first immovable object, an attempt is made to clarify one of the hypotheses of the urban development of Drohobych from the unfortified initial settlement of salt workers on the right bank of the Pobuk in the twelfth and thirteenth centuries, through its gradual development into a proto-city settlement of the thirteenth and early fourteenth centuries in the present Zvarytske suburb to the foundation of a new locational centre in the fourteenth/fifteenth centuries on the free adjacent territory.

Keywords: Church of the Ascension; foundation probing; stands; semi-subsistence housing; urban reconstruction

INTRODUCTION

Architectural archaeology is a sub-discipline of archaeology that studies man-made structures preserved underground. The largest field for the application of its methods is in historic cities – nodes of concentration of architectural monuments: sacred buildings, fortifications, residential and public buildings, cobbled or wood-paved ancient streets/squares, important craft buildings, engineering structures and even gardens and park complexes, which also left traces underground. Architectural and archaeological research is required not only for the lost and forgotten relics of past architecture and urban planning, but also for the surviving monuments that need to be restored to
emphasise the continuity of development, continuity, and identity of culture.

Architectural and archaeological research is one of the fundamental methods of architectural monuments comprehensive restoration (Kajzer, 1984; Harris et al., 1995). It is carried out before the start of research and design as part of field research and surveys and lasts until the final stage of restoration (Mohytych & Lukomskyi, 2021). The most common method used in the initial stages of such research is reconnaissance probing of the underground parts of monuments using probes (<2 m²), pits (<20 m²), or trenches. Recently, these exploration works have been combined with geological surveys near monuments. The advantage of the probing method is to obtain the most necessary information while rationally interfering with the cultural layer around the objects, while the disadvantage is the localisation of the surveys and, therefore, the receipt of relatively limited information about its underground structures and adjacent cultural layers with archaeological objects. In the practice of architects and restorers, foundation probes are primarily interested in the building structures themselves, while archaeologists are interested in cultural layers and movable artefacts. Therefore, it is optimal to use the architectural and archaeological methodology for processing probes at architectural monuments. Wooden architectural monuments are considered to be quite difficult to study, as wood is generally less durable than stone or brick. Exemplary in this respect is the architectural and archaeological studies of the seventeenth-century Church of St. Paraskeva Pyatnitsa in Belga, Lviv region, in 2003, which revealed earlier archaeological sites with accompanying materials, based on which reasonable assumptions were made about the location of previous churches of the fifteenth and sixteenth centuries mentioned in written sources (Petryk et al., 2004; Lazurko, 2007).

The research aim was to demonstrate how the results of the architectural and archaeological methodology used to probe the foundations of a specific seventeenth-century wooden architecture monument allowed the development of a hypothesis about the stages of formation of the urban planning structure of Drohobych during the princely era and early modern times.

MATERIALS AND METHODS

As part of the pre-project comprehensive scientific research of the architectural monument of national importance (No. 378) of the Church of the Holy Cross in Drohobych, Lviv region (Fig. 1), conducted by the Research Laboratory (RL) No. 104 of Lviv Polytechnic National University (hereinafter – LPNU) under the direction of Doctor of Architecture, Professor Mykola Bevz, a programme of architectural and archaeological sounding at the foundations of the object was developed. The project was executed by architect-restorer Yurii Dubyk (LPNU), and the author of the article is the executor of the soundings.

Figure 1. A general view of the Church of the Exaltation of the Holy Cross in the Zvarytske suburb of Drohobych from the southwest

Source: author’s photo

The pre-project surveys at the monument aimed to determine the construction and technical features, construction periodisation, and state of preservation of the foundations under all four components of the site (Fig. 2). The fieldwork lasted from 12 to 20 November 2021. Performers: the expedition of the NULP Research Laboratory 104. Assistance in the fieldwork was provided by the Archaeological Laboratory of the Faculty of History of the Ivan Franko Drohobych Pedagogical University (Doctor of Historical Sciences Leonid Tymoshenko), as well as by a 2nd-year student of this faculty Vasyl Syvorotka. Taras Ivanyshyn, a researcher at the B. Voznytskyi Lviv National Gallery of Art, occasionally participated in the expedition.

Figure 2. The plan of the church with the implemented probes

Source: V.S. Vuytsyk (1985) with author’s edits
The methodology of the architectural and archaeological probe is a line-by-line deepening of areas with a descriptive, graphic, and photographic recording of planographic and stratigraphic information, discovered immovable objects, and selection of movable artefacts from cultural layers. Measurements were made using measuring instruments from conventional zeroes “tied” to the ground foundations of the site.

Before the survey, the history of the monument was studied in detail (Slobodian, 2017) and a chronological table was created (Table 1). According to written sources, the history of mentions of the church dates back to the second half of the fifteenth century, but the monument that has survived to the present day, according to the inscription on the cross, dates back to 1615. Therefore, based on the historical information reflected in written sources (Slobodian, 2017), seven construction and renovation periods of the monument were noted from the beginning of the seventeenth century to the present day.

<table>
<thead>
<tr>
<th>Date, year</th>
<th>Event</th>
<th>No. of build period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1460</td>
<td>The earliest mention of the existence of a church in Drohobych</td>
<td></td>
</tr>
<tr>
<td>1496</td>
<td>The first mention of the Church of the Holy Cross in Drohobych on the outskirts of the city</td>
<td>-2</td>
</tr>
<tr>
<td>1499</td>
<td>Church burns down during Turkish-Tatar attack</td>
<td></td>
</tr>
<tr>
<td>1507</td>
<td>The church was rebuilt</td>
<td>-1</td>
</tr>
<tr>
<td>1613</td>
<td>The modern Church of the Exaltation of the Holy Cross was built</td>
<td>1</td>
</tr>
<tr>
<td>1661</td>
<td>During the control of Father Anthony Chesnokhrestskiy, the church was expanded by building an upper church or chapel of the Nativity of St John the Baptist above the babynets (women space)</td>
<td>2</td>
</tr>
<tr>
<td>1715</td>
<td>Under Pastor Stefan Hlibkovych, the church was renovated</td>
<td>3</td>
</tr>
<tr>
<td>1738</td>
<td>Renovation of the church under pastor Vasyl Hlibkovych</td>
<td>4</td>
</tr>
<tr>
<td>1823</td>
<td>The renewal of the church was “weighed”, i.e., lifted for installation on a new stone foundation</td>
<td>5</td>
</tr>
<tr>
<td>Beginning of 1920</td>
<td>A porch is arranged in the lower gallery</td>
<td>6</td>
</tr>
<tr>
<td>1963</td>
<td>The monument is included in the National Register of Monuments of Ukraine under the protection number 377</td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>A study of the monument was carried out (architect Ihor Starosolskyi)</td>
<td></td>
</tr>
<tr>
<td>1970-1971</td>
<td>Restoration (architect Ivan Mohytych). At that time, the buildings and the chancel were dismantled, and the church was covered with new shingles, and the murals were partially restored</td>
<td>7</td>
</tr>
<tr>
<td>1987</td>
<td>The Church of the Exaltation of the Holy Cross belongs to the Department of Wooden Architecture Monuments of the Drohobychyna Museum</td>
<td></td>
</tr>
</tbody>
</table>

Source: compiled by the author based on V.M. Slobodian (2017)

The stratigraphic method of relative object dating was used in the probe processing, the aim of which was to determine the chronology of archaeological and architectural objects by the sequence of cultural layers, the formation of which is associated with their appearance.

RESULTS
Probe 1 (1x1 m) was located at the southeastern crown of the nave foundations. The eastern boundary of the probe coincided with the end of the longitudinal foundation (Fig. 2). Within the probe, a support structure of two stands of different times, located one above the other, a part of the stone foundation was revealed, the state of preservation of the underground structures of the monument was found, and archaeological material was collected.

A stander is a piece of log without bark, the ends of which were cut with an axe to better preserve the wood in the soil. The stander was placed or driven vertically to support the crown of the foundations of a wooden building.

Stander 2 is located under stander 1 in a vertical position. It is in a worse condition than the first one. Stander 2 has no finished end. Its upper part was broken off before the later structure was installed. A base slab (40x40x1.5-2 cm) of dense limestone stone in a cracked state was found under the base of stander 2. The slab was installed on the horizontally cut surface of yellow mainland clay, i.e., on the pit bottom (1.65 m), in which the structure was arranged (Fig. 3; Fig. 4). The edge of the pit could not be detected within the part of the buried probe.
Stander 1, a round timber with a smoothly chopped end surface, without bark, semi-rotten, and heavily cracked in the longitudinal direction, was found just under the crown of the log cabin. Loose soil took the place of the rotted or dried wood areas. Stander 1 was supported on transverse bedding made of a 10 cm thick and ~24 cm wide piece of board. The board is located parallel to the southern footing, i.e., in an east-west direction. The western edge of the substrate board is evenly cut off, corresponding to the designed contour of the stander, and the eastern edge extends beyond the opening. The length of the substrate was determined using a feeler gauge to be ~58 cm. Therefore, stander 1 was supported on one side of the substrate without a groove for fastening. During the operation of the structure, the western side of the substrate settled and the fragment of the substrate board itself tilted by ~10° from its original position (Fig. 3; Fig. 4). The sagging of the base board indicates that the stander was performing its support function before the brick foundation was built, and after the strip foundation was installed, the drying of the stander wood led to a gap of 5-8 cm between its upper end and the foundation (Fig. 3; Fig. 4).

In the north-western corner of the probe, the foot of a part of the ribbon foundation of the southern foundation was reached. It was built using a medium-strength grey lime-sand mortar of flaked dense sandstone and granite. There are no layers in the masonry. There are no traces of grouting between the stones. Most likely, the structure was built from the opposite, inner side of the building. The width of the foundation at the top is about 40 cm, and slightly increases to about 50 cm downwards. The base of the foundation lies at the level of -0.95 m, i.e., the height of its structure is 50-55 cm. The foundation is installed on mixed soil. Judging by the nature of the surface, the structure was built openly. The foundation is laid to stander 1 (Fig. 3; Fig. 4).

During the last restoration in 1970-1971, waterproofing in the form of roofing material was installed between the surface of the foundation and the basement. During this process, the nave timber frame had to be slightly supported. The state of preservation of the foundation above the waterproofing is satisfactory (Fig. 3; Fig. 4).

There is almost no stratigraphy in the side walls of the probe. In its lower part, there is a variegated brownish-yellow mixture of loams – the fill of a pit much wider than the probe. Small fragments of pottery, glass, and bricks were found in the pit fill. The most recent finds of the complex are fragments of thin walled, glazed on both sides, ceramic containers dating from the seventeenth to the eighteenth centuries. Considering the latter definition, the pit with unidentified outer contours, in which stander 2 was installed and later replaced by stander 1, can be dated to the second rather than the first construction period (Table 1). A decisive argument in favour of the first or second assumption would be a dendrochronological analysis of the remains of stander 1, a fragment of which has about 40 annual rings in contact with the bast layer of wood.
In the western wall of probe 1, the profile of another pit, dropped into the previous one, can be traced. Its bottom is horizontal, with a mark corresponding to the level of the stone foundation sole (-0.9 m). At a distance of 85 cm from the contour of the foundation, the bottom of the pit turns into a sloping side wall at an angle of ~60°. The pit fill contains interspersed clumps of lime-sand mortar, which is similar to the foundation fill. On this basis, the pit should be attributed to the time of the church’s renovation in 1823, when a stone foundation was laid under it (Fig. 3; Fig. 4).

Based on the stratigraphic method of relative dating, it was concluded that stander 2 dates back to one of the earliest periods of construction or substantial renovation of the church in 1613 or 1661, stander 1 with the foundation underneath to one of its repairs in the eighteenth century (1715 or 1738), and the stone foundation to the major renovation of the church in 1823, during which the log cabins were built with supports (Vuytsyk, 2004).

Probe 2 was laid at the southwestern corner of the Babynets, mainly from the south and partially from the west. Its dimensions in plan: 1.3×1.0 m with a cut of 0.4×0.2 m at the very crown of the log house (Fig. 2). The soil under the gallery floor is mixed and dry. It contains rotten wooden chips, clots of lime-sand mortar, inclusions of yellow clay, and redeposited human bones. In general, it is a mixed brown loam. It can be concluded that the probe entered a former wider dig. At the level of -0.85 m, the probe reached the base of the stone foundation (Fig. 5).

The bases are connected by an interesting hidden oblique lock. The upper part of the cross-base outlet was lost before the last restoration work, as indicated by its uneven surface, which is covered with red paint as an antiseptic, along with the side face of the longitudinal plane. The fairly evenly chipped crown of the transverse base originally filled the cavity under the upper base’s mortise to the top. The end of the upper base is cut with an axe (Fig. 5; Fig. 6).

Unlike the nave log cabin, there was no waterproofing between the foundations and the foundations of the Babynets, which is why the condition of the lower parts of the wooden structures at the junctions with the masonry is unsatisfactory. The wood of both foundations in the lower part has rotted to a thickness of 5-7 cm (Fig. 5).

Under the crown of the log cabin, stander 3 was discovered. Its state of preservation is unsatisfactory, similar to
the state of preservation of stander 2, i.e., the wood has lost its full bearing capacity, and rotted, but retained the shape of its former shell with fibres at the time of opening. This shell was destroyed on the opposite eastern side during the construction of the stone foundation, one of the stones which practically cuts through the wood (Fig. 5). Thus, in 1825, when the stone structure was erected, the wood of stander 3 was already in a rotten state. To the north of stander 3, no stone foundations were found.

Stander 3 was installed directly on the horizontally cut plane of the mainland clay. The mark is -1.57 m. The edges of the pit in which it was constructed were not found. The stratigraphy of the northern wall of the pit consists of three layers. The upper layer is a grey loam with wood remains up to a depth of -30 cm; the middle layer is a light brown loam with inclusions of mainland clay and fragments of semi-rotten wood, up to a depth of -0.90 m; the lower layer is a dark brown loam with small grains of mainland clay and woody smoke. All three layers are bulk, in a dry state. The two lower ones are related to the backfilling of the stander. The upper one was formed later, during the last restoration of the monument (Fig. 6). No dating archaeological material was found in the fill layers.

The foundation structure was built in an open-cast manner. The material for the foundation is a dense, crushed grey sandstone, as well as granite, generally pinkish in colour with dark and light angular inclusions of feldspar, quartz, and crystalline mica specks. The stones are of various shapes, mostly with one/several naturally formed or chipped smooth surfaces. The masonry is bonded with a light grey lime-sand mortar. In terms of material and construction techniques, the foundation is similar to the masonry found in Probe 1 (Fig. 5; Fig. 6).

The foot of the foundation is laid much wider than its upper part, by 20-27 cm. The contours of the lower layer are irregular, and its thickness is 18-20 cm. The next layer is built with bedded stones and is 10 cm thick. The third layer, 20 cm thick, consists of sub-cubic stones, which are set in a row almost to the bottom edge of the foundation. The surface of the row was levelled with smaller stones and filled with a layer of mortar, into which the undermined foundation unit was lowered or "drowned" (Fig. 5). The mortar on the outside is often in the form of frozen streaks, without traces of grouting. Thus, the foundation structure was built from the opposite, inner side of the building. A significant number of cavities can be seen on the southern face of the masonry. A characteristic feature that indicates that the foundation was built under existing foundations is that the mortar partially covers the base of the foundation, forming a kind of rim several centimetres high and wide (Fig. 5).

At the southern boundary of the probe, the foundations of the lower gallery, which support its pillars, were traced. The cross-section of the foundations is 14×14 cm (Fig. 2). They are connected "in a paw". The joints do not coincide with the pillars. Under the junction of the foundations, in the southwestern corner of the probe, a part of the stander 4 with a diameter of 20 cm and a length of 55 cm was exposed (Fig. 6). Stander 4 was installed without a base, directly on the ground. A 3 cm thick and 20 cm wide piece of board was placed between its top and the joint of the bases.

Thus, in Probe 2, it was possible to examine and record stander 3, part of the foundation structure under the Babinets, the foundation of the lower gallery, and stander 4. The structures of the lower gallery appear much fresher than the previous ones. Their appearance should be dated to the nineteenth and twentieth centuries. The state of preservation of the structures is unsatisfactory: stander 4 is in a semi-rotten state, and cracks can be seen in the foundation structures. Judging by the condition and appearance of stander 3, it, similar to stander 2, should be dated no later than the first two construction periods – 1615 or 1661 (Table 1).

Probe 3 (1×0.8 m) is located at the northern pillar of the main entrance to the lower gallery. Its longer side is oriented in the north-south direction. The probe is adjacent to the foundations of the lower gallery (Fig. 2; Fig. 7).

![Figure 7. Probe 3 is at the final stage of opening. View from the west, from above. Source: author’s photo](image)

Under the junction of the lower gallery’s foundations, the remains of stander 5 can be traced, which is only partially preserved. Its core has completely rotted away. In contrast to the previous stander 4, which relates to the same construction of the lower gallery base, a horizontal substrate in the form of a granite slab with dimensions of 30×30×3-3.5 cm was found under stander 5 (Fig. 7). Between the top of the stand and the junction of the foundations, a 2.5 cm thick piece of board was placed across them.

At the northern wall of the probe, in the north-western corner, at a depth of -0.45 m, a human skull was found – burial 1 (Fig. 8). It was decided not to examine the burial and leave it in place, but to go deeper only in the southern part of the probe to the mainland horizon. At a depth
of -0.85 m, a patch of dark soil was cleared. It revealed a part of grave 2. The probe included femurs, partially pelvis and tibia. The burial lies at the level of -0.90 m. The skeleton is in an elongated position, sideways, with the head to the west. The length of the femur is 41 cm (the person was ~1.64 m tall). A nail fragment with wood remains in situ was found near the northern wall of the burial pit, indicating the presence of a coffin, no traces of which survived. The surface of the mainland horizon was reached in the middle part of the probe at the level of -0.95 m. It is cut off, as the transition between the mainland and the mixed soil is quite sharp (Fig. 7; Fig. 8).

**Figure 8.** Probe 3. Layout and eastern wall in scale 1:20

**Note:** 1 – wooden structures; 2 – granite slab; 3 – crushed stone layer; 4 – grey loam; 5 – brown loam with clay; 6 – brick cluster; 7 – human bones; 8 – mainland clay

**Source:** developed by the author

Between the marks of -0.350.65 m, a cluster of brick fragments was found, among which two almost intact brick tiles were found. Their format is 16×14×4-4.5 cm. The tiles are completely baked, i.e., well fired. The medium-density ceramic dough contains impurities of quartz sand, especially on the lower and side surfaces. The upper bed of the tiles is quite convergent, i.e., smoothed by friction. They come from a ceramic floor that has been in use for a long time (Fig. 9).

**Figure 9.** Probe 3. Fragments of two brick floor tiles

**Source:** author’s photo

Thus, in probe 3, the remains of another stander under the node of the lower gallery foundations, the remains of burials in the church necropolis, and fragments of two brick tiles that may have come from the former church floor were traced. According to the composition, manufacturing technology, and typology, they can be tentatively attributed to the Renaissance and Baroque periods of architecture, i.e., to the late sixteenth and seventeenth centuries. Probe 4 (1×1 m) was located at the north-western corner of the nave, with its north-south axis running along...
the junction of the nave’s log cabin and the lower gallery (Fig. 2). The soil in the probe differed from the previously described ones by its dark colour, humus loam and higher moisture content. At the level of 0.6 m under the crown of the log house, a part of the masonry foundation supported by two wide slabs was uncovered, and at the final stage of excavation within the probe it turned out that the slabs were installed over the filling of a deep pit (Fig. 10; Fig. 11).

Figure 10. Probe 4

Note: 1 – stripping at the level of 0.6 m; 2 – the final stage of opening, view from the north, from above
Source: author’s photo

The foundation itself was built openly from dense limestone with a strong cream-coloured mortar. The slabs at its base are made of the same stone. The first of them, the eastern one, is >43 cm long and 24 cm thick. The slab continues in an easterly direction beyond the boundaries of the probe. From the west, it can be seen that it has an L-shaped...
cross-section, which is similar to a fragment of a stone sarcophagus with adjacent walls ~10 cm thick (Fig. 11).

The second, western slab, 10-12 cm thick, lies with a slight slope and is visible in the probe for a length of 47 cm. It continues in a westerly direction beyond the limits of the exposure. Part of the end face of the slab is smooth, which makes it similar to a tombstone or sarcophagus lid.

The first layer of the stone foundation was laid on the edges of both slabs, with a 12 cm gap between them. The larger stone is slab-shaped and 16 cm thick. It is supported by the eastern slab. On the northern face of the stone, vertical traces of two drilled holes 3.5 cm in diameter are visible. These marks are associated with the extraction of the stone in the quarry by drilling a series of dotted holes. The second stone of the first layer is much smaller. It is resting on the edge of the western slab. Both stones are bonded with lime-sand mortar. The width of the masonry is 42 cm (Fig. 11).

The second layer of the foundation structure, 16 cm thick, resembles double-faced masonry – larger stones are set on the sides, and the space between them is filled with small stones on the filling. The third layer of masonry, 34 cm wide and 14 cm thick, is made up of two partially processed stones with knees and naturally flat surfaces. The fourth layer is made up of a single bedded limestone, which is slightly different in structure from those used for the foundation, although it may also belong to the original masonry, as a seam filled with "native" mortar has been partially preserved under it, and fragments of the same filling can be traced on its upper bed. At the same time, another lime-sand mortar of a greenish hue was observed on the surface of the stone, on which a sheet of roofing material was installed and supported by a new restoration base in the form of a rough board, added from below the old one. These are traces of the 1971 restoration of the monument (Fig. 10).

The exposed foundation structure consists of three to four verstks of semi-worked dense limestone stones, laid with cream-coloured mortar (Fig. 12). It is surrounded on both sides by a loose grey-brown loam, which is almost indistinguishable from the one that fills the pit under the slabs at the base of the foundation. It was not possible to establish whether the foundation is in the form of a column or a ribbon that could run along the transverse base of the nave, although it is more logical to assume its ribbon rather than a column-like shape in plan (Fig. 2; Fig. 11).

At the level of -0.5-0.6 m, at the western wall and in the northeastern corner of the probe, two yellow spots were revealed, which was due to the content of mainland clay (Fig. 10, 1). By selecting the dark fill from among the mainland remains, a buried archaeological object 1 was discovered – part of a pit with vertical mainland walls and a horizontal bottom at the level of -1.68-1.72 m. The side walls of the object form a right angle in the plan. They are orientated to the cardinal points (Fig. 10, 2; Fig.11). In the lower part of the fill of Feature 1, a fragment of a ceramic pot crown was found. It is made of well-tempered clay with a significant content of fine sand and a small proportion of crushed fireclay and Jasper; the surface is smooth, rough, fired evenly to dark beige on the outer and inner surfaces, three-layered at the fracture (the core is dark grey), and has a porous texture. The neck is characterised by an arcuate outward curve. The outer surface of the crown is formed in the form of a cuff, obliquely cut outwards, the plane of which is slightly profiled with two shallow grooves; on the inner surface of the crown, faint traces of an almost completely levelled roller can be traced. The pot is decorated with a rectilinear ornament in the form of wide irregular furrows applied with a point at the base of the neck and in the upper part of the shoulders (Fig. 12, 1).

The morphology of the crown is debatable. According to the typology of outlines, the ceramics can be attributed to Group I and dated to the end of the eleventh – first half of the twelfth century (Hupalo, 2014). At the same time, based on the levelled outlines of the roller on the inner surface, the blurred contours of the neck and shoulders, and a particularly significant number of impurities, including finely ground tin and fireclay, the pot fragment can be dated to the second half of the 13th century (Hupalo, 2020).

Thus, in probe 4, object 1, buried in the mainland base, which should be dated to the princely period, was discovered, as well as the construction of a masonry foundation supported by wide stone slabs, which, according to the
Architectural-archaeological research and the hypothesis of the development of...

archaeological complex, dates from the seventeenth – first half of the nineteenth century. In terms of construction technique, parameters, and mortar characteristics, the foundation is similar to the previous foundations of 1823, although the use of granite is not evident in the construction, the masonry is double-faced in some places, and the mortar used is cream rather than grey, as in previous cases. Based on this, the foundation can be dated not to the fifth but to the second or fourth construction periods, i.e., its appearance can be attributed to the second half of the seventeenth or first half of the eighteenth century (Table 1).

Probe 5 was carried out at the foundations of the first southeastern bay of the altar log. The probe area of 1×1 m was oriented at an angle of 45° to the cardinal points, i.e., exactly coincident with the broken face of the altar log (Fig. 2; Fig. 13, 1).

Figure 13. Probe 5

Note: 1 – the location of the probe, viewed from the east; 2 – a fragment of the combined stone and wood foundation structure under the altar log, viewed from the southeast

Source: author’s photo

The foundations of the altar log house are provided with waterproofing in the form of roofing material and are in a good state of preservation. The foundation structure was laid from a mark of -0.53 m relative to the lower edge of the foundation on the cultural layer cut, not on the mainland. The horizontal section of the cultural layer at this mark shows predominantly grey-brown dry loam with small inclusions of mainland clay, brick fragments and charcoal. The foundation was constructed rather crudely of untreated granite and limestone blocks/stones, which is associated with the rear side of the masonry, which was carried out from the interior of the building. It is similar to those described in probes 1 and 2.

The stone masonry completely covers the remains of stander 6, the upper part of which was destroyed during the foundation laying. The diameter of the stander is 30 cm, and its surviving length is 22 cm. It is similar to standers 2 and 3 in terms of its state of preservation and wood character. The base of the stander consists of two tiers of cream-coloured sandstone slabs. The upper slab (45×40×4 cm) is installed in line with the side foundation, and the lower slab (60×24×12 cm) is installed along the direction of the broken foundation. In other words, the slabs are arranged in a similar sequence to the foundations (Fig. 13, 2).

The sides of the probe to some extent reflect the formation of the adjacent stratigraphy. On the northeastern side of the probe, a horizontal boundary between the grey-brown and dark brown strata at -0.5 m is visible. Since the upper layer contains grains of lime-sand mortar used in the foundation, it is logical to associate its formation with the construction of the stone foundation in 1823. The lower horizon belongs to an earlier period. It is evenly mixed due to the church necropolis, the objects of which can be found below (Fig. 13, 2).

On the south-western side of the probe, a light layer of redeposited lime-sand mortar is visible from above, which should also be linked to the construction of the foundation in 1823. Above it, a layer of clay lock has been preserved. The foundation pit did not extend into this area. It could have been occupied by the structures of one of the levers used to raise the altar log. From the level of -0.45 m in the right (western) part of the wall, the sloping contour of the pit leading under the crown of the log house is visible. Most likely, this is a pit for the construction of stander 6. It is filled with brown loam mixed with grains of yellow mainland clay and brick fragments. Above this pit, the fill of which was still relatively loose, the construction layer just mentioned is settling (Fig. 13, 2).

Even older layers in the stratigraphic profile are located in the lower left (eastern) part between -0.5-1.0 m. Here, there are unevenly mixed soils with human skeletal fragments deposited in them. Such a mix is typical of cultural layers formed over Christian necropolises.

At the level of -1.00 m, a fragment of a pot crown was found in probe 5 (Fig. 12, 2). The filling is made of well-made clay with a medium content of fine sand and a slight admixture of crushed chamotte and jasper; the surface is smooth, rough, three-layer firing – dark beige on the surface and dark grey in the core, the texture is porous. The profile is characterised by an arched outward neck. The shape of the crown belongs to the roller-cuff model but differs from the "classic" version by its deformed outlines. The top of the crown is...
shaped as a small roller, well profiled from the outside and accentuated by a rim on the inner surface; from the outside, the roller abruptly turns into an obliquely cut edge, lined with a roller-like thickening, which gives it the appearance of a cuff. According to morphological features, characteristics of the pottery dough and firing, the pot can be dated to the second half of the 13th century (Hupalo, 2020). Considering the purpose of the reconnaissance probe, it was decided to stop its examination at this level.

In general, in probe 5, it was possible to uncover and record part of the masonry foundation, as well as the remains of the original foundation of the temple in the form of a stander 6. It was not supported on the mainland foundation but on the cultural layer. Because of this, two slabs were laid at its base in compliance with the direction and sequence of the altar log foundations.

**Hypothetical reconstruction of object 1 in probe 4**

An important node of archaeological features recorded in probe 4 requires more detailed consideration and interpretation. The lower part of the pit of object 1 was filled with dark humus loam. It was overlain by a mound of yellow clay. It was preserved in the left, northern half of the section. On the right, southern side, a pit filled with grey-brown loam with inclusions of small construction debris and mainland clay cuts into the clay layer (Fig. 11, section 3-3).

The layer of grey-brown loam, which cut into the layer of yellow fill clay above object 1, is related to the construction or repair of the church, as it contains the stone foundation of the north-western corner of its largest log house. A 5.5 cm thick brick fragment was found in the lower part of the fill of this layer. It is similar in thickness and composition of ceramic dough to the tiles from probe 3 described above. It differs from them by the smooth surface of the upper bed, cut off during moulding with a flat grain measurement stick. The micro-furrows from the stick indicate the direction of cutting the raw material. The lower edges of the product are smoothed similarly to tiles. It can be assumed that this fragment comes from the same tile, which, however, was not in use. Based on the typological similarity of the fragment to the tiles, it should be dated within a wide range – from the late sixteenth to the eighteenth century.

In the surviving part of the yellow clay fill layer, darker layers of brown loam can be traced, which lie obliquely with characteristic deflections. The curvature of the fill layers suggests that the pit of the buried object 1 should extend much further to the south and east, and the darker post-functional layers have settled into the middle part of its fill over time (Fig. 11, section 3-3).

The uncovered north-western part of object 1 resembles the corner of a semi-hut of the princely period in its characteristic features. The highest preserved level of the mainland horizon is located at the western wall of the pit. Here it is 0.50 m (Fig. 11, layout). The bottom of object 1 is at 1.68 m. That is, the height of the western wall of the pit was more than 1 m (~1.18 m). This characteristic fully coincides with the pits of semi-earth dwellings of the princely period (Rappoport, 1975). In the twelfth century, half-hearted dwellings were built and functional in the capital cities of the Galician land (Voynarovskyi et al., 2002). In the peripheral centres, the tradition of their construction could have lasted until the second half of the thirteenth century. Based on this, it is reasonable to hypothesise that object 1 is the remains of a half-hearted dwelling of the princely era (Fig. 14).

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**Figure 14.** The hypothesis of the formation of a cultural layer over object 1

**Note:** 1 – northern foundation of the church nave with the adjacent day surface; 2 – dark humified loam with a find of the 13th century; 3 – layer of bulk clay of the 15th-16th centuries; 4 – layer of grey-brown loam with materials of the 17th-18th centuries

**Source:** developed by the author
According to the stratigraphy analysis, it can be assumed that after the cessation of the functioning of object 1 or the probable 13th-century dwelling, its recessed part was filled with dark humus loam. The loose fill shrank, which eventually led to the appearance of a clay layer at the site of the depression. Only then did the pit associated with the construction of the wooden church appear. The first foundation structure of the building could likely have been a stander, similar to the original standers found under other cornerstones of the building. However, such a structure would have quickly begun to settle into the fill of the earlier object, leading to its radical replacement by a foundation set on a platform of stone slabs. These probable stages cannot be traced archaeologically, as the pit of the complete foundation replacement completely absorbed previous interventions in the cultural layer related to the construction of the wooden support. However, it is also possible that a single initial installation of a foundation with stone slabs in the early seventeenth century, i.e. during the first construction period in 1613, was possible. The previous two possible periods of construction and reconstruction after the church fire of 1496 and 1507 (Table 1) have not yet been archaeologically traced at this site.

The hypothesis of a princely dwelling can only be confirmed or refuted by further archaeological research (Fig. 15).

**DISCUSSION**

There are many hypotheses in the literature about the early stages of the formation of pre-local Drohobych in the princely era. The first of them were based on local legends, recorded by I. Vahylevych in the nineteenth century, about the existence of the first city of Bych somewhere nearby and the foundation of the second Bych, from which the oikonym “Drohobych” was derived (Mściwujewski, 1935). The archaeological localisation of fortified settlements near Drohobych (Ratych, 1957; Sveshnikov, 1976) fuelled this hypothesis. At the end of the last century, the noted culture monuments recorded in literature and the surviving monuments of material culture gave scholars grounds to put forward a new hypothesis that the beginnings of Drohobych are genetically linked to the salt springs on the banks of the Pobuk and the expected princely castle, on the site of which a parish church was built in the late fourteenth century (oliynyk, 1994; Havryliuk, 1998). Based on a thorough review of written sources, urban analysis, archaeological supervision, observations, and excavations in the historic city, the first part of this hypothesis was confirmed (Tymoshenko, 2004; Petryk et al., 2000; Petryk, 2009). Wider archaeological investigations revealed a large collection of redeposited materials from the twelfth and thirteenth centuries: a 2001 study was conducted on the site of the oldest Drohobych church of the Conception of the Blessed Virgin Mary from the first half of the fourteenth century, which was re-dedicated into a church in 1339; a 2003 study was conducted on the territory of the Drohobych saltworks (Petryk, 2004). Instead, the results of quite fundamental architectural and archaeological research at the bell tower of St. Bartholomew’s Church near Drohobych’s market square, conducted in 2015–2016, convince us of the formation of a cultural layer in the area near the church and the present-day city centre starting in the fourteenth century (Łukomska et al., 2017), which casts doubt on the second part of the former theory of a princely castle on the site of the church.

The discovery of object 1, similar in characteristics to the dwellings of the 11th–13th centuries with the finding of a 13th-century pot crown in its fill, gives grounds for reinforcing and refining this hypothesis, namely, the location of the first immovable object – very likely, one of the buried dwellings of the princely settlement.

The object is located on the right bank of the Pobuk or Seret stream, which, skirting the hills of the present-day central part of the city from the west and south, runs through the suburb of Zvarychi along the street of the same name between the saltworks and the centre of Drohobych (Fig. 16).
Considering the level of the daytime surface from which the site pit was lowered (-0.5 m), it was located 2-2.5 m above the stream level. The analysis of the terrain and certain patterns of settlement formation along streams or rivers concludes that the settlement could have been located along the Pobuk on its original bank. Most likely, it had a linear planning structure, which was formed along the shoreline and the road that ran along the right bank of the stream. The peculiarities of the terrain, which has no sharp bends or natural boundaries, do not give grounds to assert that the settlement was protected by significant external fortifications. Most likely, it could have been a weakly fortified settlement of a relatively small size. This type of unfortified riverside rural settlements – selytsia – were stretched in a narrow strip of 40-60 m along the bank for an average length of 500 m (Kuza, 1985), although much larger settlements (0.8-1.5 ha) are known (Kuchera, 1975). Taking into account the twelfth- and thirteenth-century materials discovered by the expedition of the Ivan Franko Drobobych State Pedagogical University (Petryk, 2009) on the opposite left bank of the Pobuk, and superimposing the outline of F. von Mieg’s map of 1779-1782 on the modern topographic basis of Drobobych (Bevz & Petryk, 2001; Bevz et al., 2003; Prokop, 2017), it should be assumed that the settlement could have developed in this northern direction during the thirteenth and fourteenth centuries, exploring the favourable southern slope of the left bank of the river, where the ancient street pattern is observed and where the oldest church of the Conception of the Blessed Virgin Mary was founded in the first half of the fourteenth century. The centre of the new locational city with a separately fortified church of 1392 and the Market Square of the fourteenth/fifteenth century turn of the century was planned to the northeast of the early proto city (Fig. 16). From this perspective, it also seems logical that a cluster of churches – not only the Vozdvyzhenska and the nearby Yuriyivska churches but also others – appeared later in this long-populated historical part of the princely city.

CONCLUSIONS
As a result of the architectural and archaeological probing of the foundations of the wooden architectural monument, several foundation systems of different periods were discovered, their state of preservation was determined, stratigraphy was recorded, the burial of the church necropolis

Figure 16. The hypothesis of the planning development of Drobobych in the thirteenth and fifteenth centuries

Note: 1 – area of the unfortified settlement of salt workers of the thirteenth century; 2 – planned growth of the salt workers’ settlement in the thirteenth and fourteenth centuries; 3 – water streams; 4 – sacred buildings; 5 – residential buildings of the thirteenth century; 6 – the city centre. Elements of the location town on the map: 1 – Church of the Blessed Virgin Mary; 2 – Church of St. Bartholomew; 3 – Church of the Holy Trinity; 4 – Carmelite Monastery; 5 – Church of St. George; 6 – Church of the Exaltation of the Holy Cross; 7 – zhupa (saltworks); 8 – Church of St. Paraskeva Pyatnysia; 9 – Basilian monastery of Saints Peter and Paul; 10 – monastery yard (?); 11 – starosta’s castle; 12 – synagogue; 13 – Jewish cemetery; 14 – town hall on the Market; 15 – “Bear’s Yard” (?)

Source: compiled by the author based on Bevz & Petryk (2001), Bevz et al. (2003), Prokop (2017)
was caught, mortar samples and movable archaeological material were taken, and a part of the archaeological site older than the construction of the church was uncovered.

The original foundations of the wooden church consisted of standers, the remains of which were recorded under the crowns of the nave, altar, and narthex log structures. The two-tiered foundation of slabs under stander 6 is archaic. Based on the typological analysis of movable archaeological material, the appearance of the structures of standers 2, 3, and 6 should be attributed to the first (1613) or second (1661) construction periods, and the replacement of standers 2 with a new stander 1 should be attributed to the repair of 1715 or 1738. The system of standers recorded under the foundations of the lower gallery should be dated to the nineteenth and twentieth centuries.

Stone foundations were discovered under the log cabins of the altar, nave, and narthex, but not under the entire perimeter of the three-aisle church. Judging by the similar construction technique and building materials used, as well as stratigraphic observations, the banded stone foundations should be associated with the renovation of the church in 1823. The fragment of the foundation discovered in probe 4 differs from the other foundations by its special base of large stone slabs, the absence of granite stones, mortar, and the double-faced construction technique. It is not yet possible to confidently date this structure.

A study of the adjacent stratigraphy suggests that the continental horizon lies at a depth of half a metre. The cultural layers at the site are heavily mixed with construction and burial pits. Two Christian burials were located in front of the western façade of the church. One of them was partially uncovered, recorded, and preserved.

The movable archaeological material is represented by fragments of household and building ceramics, glass, metal, and wood. It dates from the 13th to the 19th centuries, indicates a deep tradition of settlement of the area, and gives grounds for reasoned hypotheses about the construction periodisation of the monument. The discovered fragments of rectangular brick tiles may relate to the interior of the church of the seventeenth and eighteenth centuries.

The oldest finds are fragments of crown pots from the second half of the thirteenth century, which come from the lower part of the fill of object 1 and probe 5. They, together with the characteristics of object 1 and the peculiarities of its stratigraphy, gave grounds to interpret the site as the cornerstone of a semi-earthwork dwelling of the twelfth and thirteenth centuries and to expect the localisation of a settlement of the princely era in the Zvarytske suburb. Based on this, the hypothesis-reconstruction of the planning development of early Drohobych has developed: 1) an unfortified settlement of salt workers of the XII-XIII centuries; 2) a proto-city settlement of salt workers of the XIII-XIV centuries; 3) a local fortified city of the XIV-XV centuries.

The Church of the Exaltation of the Holy Cross in Drohobych is a valuable and promising multi-layered object of architectural and archaeological study. Under its foundations are hidden artefacts and relics of a much older development of the Zvarychi tract, namely, the period of the princely era. Further study of the monument should be interdisciplinary and as comprehensive as possible, considering dendro-chronology, anthropology, and other fields of knowledge.

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CONFLICT OF INTEREST

None.

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Архітектурно-археологічні дослідження та гіпотеза розвитку долокаційного Дрогобича у XII–XIII ст.

Анотація. Архітектурно-археологічні дослідження збережених пам'яток архітектури підкреслюють тяглість розвитку, спадкоємність, самобутність культури кожного народу. Мета статті полягає у висвітленні результатів архітектурно-археологічних зондувань при фундаментах пам'ятки дерев'яної архітектури – церкви Воздвиження Чесного Хреста в Дрогобичі, а також у розвитку гіпотези урбаністичної генези міста. Згідно аналізу письмових джерел визначено сім будівельних періодів з часу побудови церкви 1613 року. Метод зондувань показав, що перші фундаменти – стендари, які встановлювали у ямах на зрізану поверхню материка, часто з підкладами кам'яних плит, та засипали ґрунтом. Архаїчною вважається система підкладів подвійних плит, зафіксована під вітчизним вінцем зрубу. Впродовж третього–четвертого будівельних періодів окремі стендари замінили, а під північно-західний наріжник головного зрубу підвели мурований фундамент, опертий на розлогу основу з плит. 1823 року під вітчизний зруб та південний фасад споруди підвели стрічкову конструкцію мурованих підмурків. Під західною підвалиною бабинця і північною підвалиною нави стрічкових підмурків не виявлено. Нижня галерея XIX – початку XX ст., оперта на систему підвалів та менших стендарів. У межах четвертової зонди локалізовано глибокий археологічний об’єкт зі знахідкою у заповненні уламку кераміки, яка датується періодом княжої доби. Аналіз низки ознак і стратиграфічних особливостей формування заповнення дає підставу інтерпретувати об’єкт рештками пів-землянкового житла вказаного часу. На основі локалізації першого нерухомого об’єкту, робиться спроба уточнення однієї із гіпотез урбаністичного розвитку Дрогобича від неукріпленого початкового поселення солеварів на правому березі Побуку XII–XIII ст., через поступове його переростання у протоміське поселення XIII – початку XIV ст. на теперішньому Зварицькому передмісті до закладення у XIV/XV ст. нового локаційного середміста на вільній суміжній території

Ключові слова: церква Воздвиження; зондування фундаментів; стендари; пів-землянкове житло; урбаністична реконструкція