The present paper contains the interim report on the second season of fieldwork carried out at Bribirska Glavica by the Varvaria / Breberium / Bribir Archaeological Project. The text gives an overview of the field operations undertaken, their results and the archaeological finds excavated and studied during this season. This material relates both to the rotunda church and to built structures postdating it.

Key words: Dalmatia, Bribir, rotunda, mausoleum, church of Sts Joachim and Ann
- analysis of the building archaeology of the foundations of the church of Sts Joachim and Ann, the underlying rotunda monument and the adjoining mausoleum;
- restoration and conservation of the sub-floor structures and the floor of the church of Sts Joachim and Ann;
- study of the ceramic material unearthed during the season;
- anthropological study of selected human remains found during the season;
- terrestrial laser scanner data acquisition and processing;
- photogrammetric modelling of selected excavated structures;
- 3D modelling of excavated areas of the site;
- setting up and populating a web-based data management system for the Project’s field operations;
- collecting and studying the documentation relating to previous excavation seasons;
- sampling of representative soil and organic material for OSL and 14C dating.

1. EXCAVATION

The results of last year’s excavations required expanding the research area, particularly to the NE of, and within, the present church. Three new trenches were opened inside the church (T10, T11, T13) and four sondages dug around it (T7, T8, T9, T12; fig. 2) with the aim of further exposing the underlying rotunda building and the adjacent mausoleum, the relative chronology of which could only be tentatively sketched in 2014. For reasons of excavation strategy, the dig in the four trial trenches was interrupted before reaching the geological substratum. Additionally, small-scale works were carried out in the trench T1.

In brief, the stratigraphy of the seven newly opened squares showed the following:

T7 (fig. 2-4)

The trench revealed a sector of a burial area comprised of several concentrated and overlapping graves and ossuaries,
featuring various types of dry-laid tomb masonry or simple stone lining. These structures reveal complex taphonomic processes. There is evidence of repeated reorganisations of the primary skeletal deposits during the conversion of certain spaces into ossuaries, which contain remains of several individuals (five for E5, seven for E6). At least one of these built structures (Gr23) can be considered a proper tomb, given its position and masonry technique. Abutting and leaning, in a domino-like arrangement, on the foundation of the façade wall of the present church, this funerary cluster postdates the construction of its pronaos. Extremely poor pottery finds coming from this test square point to intrusive ceramic. One shard of seemingly Italian origin, tentatively datable to the 2nd century AD (BR2015680, SU1032) is indicative in this regard.

T9 (fig. 1, 7, 8, 12)
During the 2014 season, only one wall of the dromos (W16) was revealed in trench T2. This year, an extension of T2 further to the NE termed T9, made it possible to investigate the stratigraphic record in the inner area of the dromos, assumed to be undisturbed in its lower section. The removal of a (sub-)modern grave (Gr3), built atop the remains of the wall W16 with blocks removed very likely from the rotunda building (among which a stone fragment [BR2015724, fig. 6] carved with early medieval 'Croatian' interlace pattern), gave access to two steps belonging to the stairs of the dromos. This was made possible by dismantling the slabs belonging to the floor of the larger annexe studied last year (SU1008). This confined space provided very few, undatable, ceramic shards. The new visual access created by the dig in the area of the dromos clarified an important aspect for the sequence of constructive phases. The monolithic shaped block embedded in the base of the dromos as second step of the stairs – which comes in all likelihood from the ancient wall of Varvaria – rests on a pavement made of small slabs cemented together and set directly on the bedrock surface (SU1127; fig. 9). This type of pavimentum is
reminiscent of rehabilitated surfaces of public areas known in Italy, at Ameria, Plestia, Perusia or Tadinum for example, dating from the end of the 3rd century onwards.3

3 Cf. A. DI MICELI, Popolamento, città e campagna nell’Umbria tardo antica, PhD thesis defended in 2013 at the University of Perugia, p. 168-169, 185-188.

Fig. 7. Walls level 3 (V. Ghica).

Fig. 8. Walls level 4 (V. Ghica).
Fig. 9. Situation of SU1127 (V. Ghica).

Fig. 10. Stratigraphic cross-sections E-E', F-F' in trench T10 (V. Ghica).
The structure that can be assigned to the rotunda monument in this trench is a large circular (three quadrants of a circle) apse built atop the bedrock (W51; fig. 8, 12). Although the inner face of the apsidal wall could not be fully cleared due to the risks inherent in its complete exposure, a test opening made in its central part suggests the absence of a bay. Preserved at a maximum height of 215 cm at its SW end, the inner face of the apse is fitted at its widened base with a 47-70 cm-high ledge (fig. 13), a feature shared by all the
apses revealed so far. This ledge, which runs uninterruptedly along the base of the inner walls and shows in several places traces of a 2-4 cm thick layer of mortar, marks the height of rotunda’s mortared floor.

The rest of the stratigraphy in T10 can be divided into three functionally defined groups of both horizontal and vertical strata related to the naos: pre-foundation soil, sub-floor and floor-related.

To the first category belong two series of often-equivalent layers bordered by the negative unit SU-1241 (fig. 10), the interface marking out the cut made in the pre-existing deposits (SU1108, SU1100, SU1087) prior to setting the wall foundation of the naos as well as the pre-foundation levelled soils on which were constructed the subfloor features associated with the sanctuary. These are non-lenticular, clearly anthropic, layers resulting from a levelling operation. The large number of strata necessitated by the levelling work is probably explainable by soil mechanics. The ceramic shards identified in these stratigraphic units, datable to the 2nd to 5th centuries, are out of original context.

The second block of stratigraphic units is connected with the subfloor structures of the sanctuary. It consists of a confessio and two privileged tombs in the sanctuary (Gr7, Gr16), along with two other tombs located along the sidewalls of the naos (Gr8, Gr12). To these should be added the foundations of the naos’ walls (W15, W19, W30). A feature shared by all these built structures is the use of spolia belonging either to the rotunda building and its internal furnishings or to other edifices of Roman period. Embedded in the foundation walls of the present church or scattered in fills, among these reused blocks are a limestone fragment of sarcophagus wall containing two inscriptions, one of which mentions IMIRO DUCE (BR2015727, SU1051; fig. 14) and two limestone fragments of latticework belonging to a perforated pluteus or transenna (BR2015720, W30; BR2015721, BR2015728).

After the excavations, two other inscribed fragments belonging to the same sarcophagus were identified in the Bribir lapidarium.
SU1050; fig. 15). The relative chronology of these subfloor structures cannot be entirely clarified. However, the positioning of the altar tomb Gr16 perpendicularly over the confessio (fig. 4, 5, 7) determines that this operation involved the reshaping of the latter. W54 belonging to Gr16 is built atop and after the partial demolition of W59 (the painted plaster visible on the sidewalls of the loculus – W33 and W34 – could still be observed on a small area of W59, fig. 16). This sub

altare installation (fig. 17), including its NW end, on top of which Gr16 had been constructed, was found empty. Unlike Gr7, devoid of human remains but in the fill of which was recovered the abovementioned inscribed block BR2015727, the altar tomb Gr16 was intact, containing skeletal remains belonging to at least six adult individuals, a tin chalice and a paten (BR2015783, BR2015993, HRU1095, fig. 18.1-2). All the structures located between the foundations of the sanctuary and naos walls were eventually dismantled in order to allow the examination of rotunda's walls.

The third group of layers is composed of three successive floors (SU1044, SU1042, SU1039) and correlated fills. Both categories featured a significant content of reused blocks.

6 Another tin chalice was found on Bribirska glavica by Lujo Marun, but it was lost during the Second World War (cf. S. GUNJAČA, Strateško i historijsko-arheološko značenje Bribira, Starohrvatska prosvjeta s. 3, vol. 10, Split 1968, p. 211 and pl. 3).
The stratigraphic record uncovered in T11 can be distinguished as two groups: one is characterised by a compact subfloor funerary area and the other composed of pre-existing features and deposition layers.

Notwithstanding the difficulty in interpretation, the second, lower, group, represented chiefly by built features set directly on the bedrock surface, shows no direct, physical connection with the rotunda monument. Several massive concrete-bound spolia (fig. 19.3, 19.5), including the late antique, probably early Christian, impost capital (fig. 20), form two parallel walls (W40, W42) of a maximum height of c. 130 cm (fig. 7). Although their delimitation is to some extent problematic, blocks situated to the SW of the wall W42 (fig. 7, 19.1, 19.4) could indicate that these two walls preserve their original east endings. Furthermore, these stone blocks tend to support the hypothesis of a connecting wall joined to W42 running SW-NE. The function of these two parallel walls, whether never completed or destroyed tower or gate, in which a grave (Gr15) was later encased, could only be determined by further excavations in T7 and along the walls of the pronaos, outside the modern church.

Amongst these, it is worth mentioning a long marble block (265x50x60 cm) broken into two pieces and damaged in the lower part, which was embedded in W40 (fig. 19.3, 19.5). After the dismantling of this wall, the two fragments were moved in the midst of T11, where they were tentatively reconnected. On the front side of the block there is a simple tabula ansata surrounding an inscription of which only the traces of a few letters are still visible (fig. 19.5). The block was narrowed at its longitudinal edges, which could indicate that it was originally built in a wall, probably positioned over the entrance of some monumental building (temple?) that existed at this same place. After the excavations, the block was left on the bedrock, but a plaster imprint of its front side has been taken before the setting of the new floor in the church.
Also set on the bedrock, a grave (Gr17; fig. 8) containing skeletal remains of a minimum of ten individuals was identified below and cut by the foundation of the N sidewall of the pronaos. Against the outer face of the only wall of this grave cleared during the dig (W75) were found two triangular bronze bowls (BR2015687; fig. 21), whilst a decorated T-shaped antler object of the type known in specialised literature as "salt container" (BR2015464; fig. 22) was discovered in the fill of the grave, together with a damaged gold early Byzantine earring (BR2015996, SU1099; fig. 23). Worth noting is the location of the grave in relation to the rotunda: Gr17 is situated against and parallel to the wall W66, which, as shown below, is connected to one of the apses of the rotunda (W23). Traces of a lime-mortared floor visible on a large slab embedded horizontally into the base of the S sidewall of the pronaos indicate that the area delimited by the walls W68, W44, W23, W66, W40 and W42 was an enclosed space. The level of this floor coincides with the maximum height of the wall W75 belonging to the grave Gr17. Lastly, a second, lower circulation level, made of beaten clay covered with a thin layer of lime mortar, was found in the same area, preserved – to a maximum thickness of 20 cm – only under the walls W42 and W43, on the bedrock surface and covering the remains of the wall W10 (fig. 19.1-19.4).

The other, higher, stratigraphic concentration in T11 is dominated by a group of five graves embedded in a solidary tight structure, made of dry stones and filling the whole width of the pronaos. All of them are oriented in the axis of the present church and occupy ¾ of the pronaos’ space. Four of them (Gr10, Gr11, Gr13, Gr14; fig. 4, 5) are aligned in a row, whilst the fifth one (Gr15) occupies the space between the walls W40 and W42. The four parallel graves sit on layers of various composition, 42-56 cm above the geological substrate (fig. 24). These five graves yielded a large amount of osteological remains. The number of individuals varies between 4 (Gr10) and 38 (Gr14). An Austrian imperial kreuzer minted in 1887 (in circulation until 1899) recovered in Gr10 (SU1068) provides the only available date for the intensive reuse of this funerary space. Among the material retrieved in this stratigraphic cluster, we should mention a fragmentary monumental stone slab containing a 1st to 2nd century Latin inscription (BR2015703, found in W41; fig. 25) and a shaped block, possibly part of a frieze, bearing the fragmentary inscription [ATRIBU[ (BR2015715, found in W46, fig. 26).

T13 (fig. 4, 5, 7, 8, 12)

This excavation square was cleared almost entirely in 1959 by Stjepan Gunjača, hence the delimitations of T10 and T11 according to the perimeter of this trench. Except for two coins extracted from the main layer of the backfill (SU1040), an Aquileian denarius minted under Ludovico II di Teck (1412-1420) and an 18th century gazetta Dalma et Alban, and a pedestal featuring a large 22 x 20 cm rectangular slot (probably part of the stone base, embedded in the floor, of the chancel stipites), the record of the area exposed in 1959 consists solely of built structures. Of the uncontaminated higher stratigraphy, only one double-layered subfloor grave (Gr12; fig. 4, 5) was not dug in 1959. It contained the skeletal remains of a minimum of 16 individuals.

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8 S. GUNJAČA, Nalaz srednjovjekovnih arhitektura, p. 235.
On top of the geological substratum lie two groups of built structures, one related to the rotunda and another one pertaining to a pre-existing building.

Belonging to the rotunda, two circular apses were partly uncovered (W65 and W23, half of which had been exposed during the last season) together with a rectangularly planned recess (W25/W44/W45) located to the NW, opposite to the large horseshoe-shaped apse (W51). The maximum height from the bedrock surface level to where these walls are preserved varies from 25 cm (W25, of which only the ledge subsists) to 207 cm (W23). W44, as possible front wall of the building, is currently preserved very fragmentarily to a maximum height of 116 cm from the bedrock level. From the highest row of stones extant in this wall survives only an ashlar block, whose shape and position (in the very centre of W44) suggest a threshold element (fig. 12, 27). At a certain point after the abandonment of the rotunda, possibly during the construction of the present naos, the three walls of the recess (W44, W25, W45) were subjected to intentional dismantling in such a way that much of W25 is no longer extant, except for the first row of stones forming the ledge of this wall.

Several construction characteristics distinguish this space of rectangular plan and might invite the question of whether the walls W44, W25 and W45 – or the lower section of them – were originally part of an earlier building. As indicated by W44 (71 cm), these walls are thicker than the apses W21, W22 and W23 (57 cm) and the masonry displays a different quality of binding material as well as larger blocks (in W44). However, such hypothesis remains architecturally questionable and is not necessarily supported by the results of the OSL age of the soil lying beneath W25 (see below).

In addition to this recess, a sondage in the soil layer situated below the foundation of the NE wall of the pronaos, in the vicinity of the outer face of W23, revealed the section of a wall (W66) abutting W23 and running approximately...
parallel to the NE wall of the pronaos (fig. 7, 8). The masonry joint between W66 and W23 seems to suggest that the former results from a later stage of construction.

The axis of the rotunda displays a 47° deviation from the north, the same orientation as the one of the adjacent buildings excavated in the 1970s to the NE of the modern cemetery (orientation type C mentioned in our previous report9; fig. 28). The difference of altitude of the bedrock measured between the centre of the large apse (W51) and the centre of the rectangular 'apse' (W44) is 76 cm (fig. 31). The slope of the floor set inside the rotunda is substantially attenuated by a higher ledge at the base of the large apse W51 (72 cm, fig. 13) and shorter ones on the opposite side (for instance, 30 cm at the base of W44) (the projecting rows of stones situated on the bedrock surface, at the base of the inner face of the apsidal walls, some of which retain significant traces of mortar, mark the altitude of the floor).

Three features were identified under the floor level of the rotunda. The first is a fragmentary wall, of which only one row of stones survives in a split of the bedrock compensating its difference of level (W26; fig. 8, 12, 29). Then, there is an apron-like large rectangular shaped block lying underneath the joint W45/W65 (W67), and lastly a sub-rectangular hole 20 x 20 cm and c. 10 cm deep excavated in the bedrock (fig. 12, 30). The relationship of these structures to the rotunda building is still under study, but the first two belong in all likelihood to a pre-existing construction.

Finally, the recovery of the large horseshoe-shaped apse in T10 prompted the dismantling, in T1, of W14 and of some adjacent blocks belonging to W15 in order to expose the outer face of W51 to N-NE. The joint between the apses W51 and W21 was thus rendered visible. Both walls retain traces of mortar and plaster in this area.

Building phasing

This season has brought to light features that permit us to refine the outline we gave last year of the building phases in the current excavation area. We limit ourselves here to addenda et corrigenda.

The dig in the trench T9 revealed new sections of the slabbed floor (SU1008) of the large annexe excavated in 201410. Slabs belonging to it could be identified this year to the E of the corner W2/W3 of the smaller adjoining subsidiary room, determining that the latter was surrounded in this perimeter by the space of the larger annexe. The building phases 4 and 511 should therefore be interchanged.

This year’s excavation did not allow us to further determine the relative chronology of the building phases 6-7, as outlined in our previous report12. However, examining the inner face of the foundation walls of both the naos and the pronaos validates the hypothesis of the latter constituting a later addition to the former. Based initially on the different length of the naos’ sidewalls and on the deviation between the axes of the naos and the pronaos (2° for the NE and 3.5° for the SW wall of the pronaos), this building sequence is further corroborated by the distinct types of masonry discernible in the foundations of the two sections of the modern church (fig. 31) as well as by the position of the naos, which lies exactly atop the remains of the rotunda and has the same length and orientation as it. Such phasing could account for the deliberate dismantling of substantial parts of the rotunda walls W25 and W44, located underneath the area where the presumptive front wall of the first nave church would have lain.

Occupation phasing

The 2015 season has made available evidence that contributes substantially to further defining the absolute and the relative chronology of the area under study.

The late antique horizon hypothesised last year11 for the erection of the rotunda is now confirmed. The orientation of the monument, identical to that of the Roman period buildings located to the NE of the modern cemetery (47° N – orientation type C4; fig. 28), points to both the early date of the construction and its incorporation into the Roman urban fabric. Various details of construction technique apparent in the walls of both the mausoleum and the rotunda point in the same direction. These observations are supported by archeometrical data. Three charcoal samples extracted from two uncontaminated layers situated directly on the bedrock (SU1021, SU1126), below the floor of the rotunda, provide a terminus a quo for the erection of the building in the mid-3rd century15. On the other hand, the radiocarbon date of a bone fragment belonging to one of the skeletons deposited in Gr17 offers a terminus ad quem in mid-6th century16. Indeed, as its position (against W66, the wall identified below and running parallel to the N sidewall of the pronaoi; fig. 8) indicates, Gr17 postdates W66 and, consequently, the age of the bone sampled in this grave constitutes an ante quem for the structure to which W66 belongs as well as, obviously, for the rotunda. Whilst not theoretically excluded, a late re-inhumation of the skeletal remains in question is, for many reasons, highly improbable. Ultimately, an OSL age estimate for soil parent material sampled in an interstice present between the bedrock and the first row of stones of W51 (OSL6) corroborates these landmarks. Despite the dispersed luminescence measurements obtained for this sample (1985 ± 470 BP), the depositional age of the C horizon soil below W51 does not postdate the beginning of the 6th century. A second soil sample (OSL4) coming from a similar context from beneath W25 offers instead a much earlier age range (2380 ± 355 BP), which suggests that this section of the rectangularly-planned recess – or, at least, the soil beneath it trapped in a split of the bedrock, provided that it went undisturbed – appertains to a pre-existing construction. The luminescence measurements for this sample might be interpreted as consistent with a 1st century BC date for the last exposure to sunlight of this soil layer, which is not necessarily the date of the building of W25, probably originally constructed as part of the rotunda. Reconciling this age with the visible architectural elements pertaining to the rectangular recess will be one of the tasks of the future excavation seasons. What is, however, certain is that OSL4 was sampled in a stratigraphic layer that could be contemporaneous with W26, a wall that belongs to a building predating the rotunda. This stratigraphic association allows us to relate the age of OSL4 with the antecedent building of which only the remains of W26 survive.

These observations call for a paradigm shift in the analysis of the Bribir rotunda. For the time being, this monument ought to be studied synchronically, dissociated from the other Dalmatian rotunda-type polychon churches, at least from the chronotypological and geotypological interpretation they are given in Croatian scholarship17. Valid comparanda to bring into discussion are constructions such as the cella septichora of Sopianae/Pécs or the baptistery of Upljana/Gračanica, to name only the most relevant ones. Although their dating raises questions, the foundation of these buildings can be situated in the 4th or 5th century18. The rotunda remains in use at least until the 9th, if not the 11th century19 taking into account the early Romanesque sculpted fragment recovered in 195920. Indeed, as testified by this season’s stone inventory, it is in the 9th century that the apparently lavish refurbishing of the monument takes place. Moreover, the inscribed block BR2015727, which refers to duke Branimirus (879–892) ([IMIRO DUCE EG(O)] – the

13 For BR201464 (SU1021, T1): Beta-35751 – 1840 ± 30 BP (8C 23.8 ‰vs PDB), Cal AD 545-1400 (95%, 2σ), Cal AD 130-230 (Cal BP 1850-1720) (68%, 1σ). For BR20562b (SU1126, T3): Beta-41794 – 1900 ± 30 BP (8C -23.8 ‰vs PDB), Cal AD 85-240 (Cal BP 1865-1710) (95%, 2σ), Cal AD 130-230 (Cal BP 1820-1700) (68%, 1σ). For BR20562a (SU1126, T3): Beta-41795 – 1850 ± 30 BP (8C -24.4 ‰vs PDB), Cal AD 80-240 (Cal BP 1870-1710) (95%, 2σ), Cal AD 125-220 (Cal BP 1825-1730) (68%, 1σ).
14 Beta-435777 – 1580 ± 30 BP (8C -18.5 ‰vs PDB), Cal AD 1450-360 (95%, 2σ), Cal AD 70-150 (Cal BP 1800-1640) (68%, 1σ). For BR201464 (SU1021, T1): Beta-35751 – 1840 ± 30 BP (8C 23.8 ‰vs PDB), Cal AD 545-1400 (95%, 2σ), Cal AD 130-230 (Cal BP 1850-1720) (68%, 1σ). For BR20562b (SU1126, T3): Beta-41794 – 1900 ± 30 BP (8C -24.4 ‰vs PDB), Cal AD 85-240 (Cal BP 1865-1710) (95%, 2σ), Cal AD 130-230 (Cal BP 1810-1700) (68%, 1σ). M. Jurković is among the very few specialists who envisaged, be it only hypothetically, the possibility of a pre-existing construction of Sopianae/Pécs or the baptistery of Upljana/Gračanica, to name only the most relevant ones. Although their dating raises questions, the foundation of these buildings can be situated in the 4th or 5th century.
15 The rotunda remains in use at least until the 9th, if not the 11th century taking into account the early Romanesque sculpted fragment recovered in 1959. Indeed, as testified by this season’s stone inventory, it is in the 9th century that the apparently lavish refurbishing of the monument takes place. Moreover, the inscribed block BR2015727, which refers to duke Branimirus (879–892) ([IMIRO DUCE EG(O)].
parallel with the very similar Lepuri inscription leads little support for the view that this inscription was carved on the other face (the outer face of sarcophagus' wall) of the stone fragment was deliberately concealed through the embedding into the masonry and consequently predates the dedicatory inscription. Written in rustic capitals, this second inscription is preserved fragmentarily, with only four readable lines of up to 15 letters (fig. 14), and is still under study.

A smaller fragment of an inscription that belonged to the same sarcophagus was identified in the lapidarium of Bribir's glavica. It was discovered in 1986 and shows the same organisation of the text, although it does not directly relate to the text of the larger fragment. On its edge (the sarcophagus’ rim) there were several letters that relate to the inscription from the time of the duke Branimir.

With the exception of the stone material, shaped, sculpted or inscribed, only the objects recovered against the wall W75 of the grave Gr17 are related to the period of activity of the rotunda building. Although of somewhat problematic date, the metal triangular bowls (BR2015687; fig. 21)41, the antler container (BR2015464; fig. 22)42 and the fragmentary gold earring (BR2015906, fig. 23)43 cannot postdate the mid-10th century. Despite their open finding context, they are unquestionably related to this grave, the only one situated at that low altitude in the whole excavation area. Located, as it is, in the front of the rotunda, along W66, a wall that might be part of western hall connected to the rotunda building and functioning together with it, similar to the narthex of the church of St Michael in Pri- draga44, Gr17 is presumably a privileged grave and assuredly a Christian one.

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25 The inscription mentions the name of a province, the interpretation of which will be discussed in a future publication. Whether this toponym relates to the historical province of Skåne, in southern Sweden, or to some other remains to be determined. Whatever the case, the historical context of the document and its finding on Bribirska glavica open a new research horizon.
26 Although the earring is visibly damaged, it is very likely that it belongs to the corpus of early Byzantine jewellery found in Dalmatia on several archaeological sites, see M. PETRINEC, Gräberfelder aus dem 8. bis 11. Jahrhundert, ph. 44, 45. 52.
27 For this church, see, with literature, P. VEŽIĆ, Dalmatinski šesterolisti, p. 45.
Owing to the lacking of early period furnishings\textsuperscript{28}, the original function of the rotunda cannot be securely ascertained as yet, notwithstanding the typological parallels that one might bring into play. It is instead evident that the building served as a church in the early mediaeval era. In this regard, the slotted stone pedestal retrieved in T13 (BR2015995; fig. 32) hints at the existence of early mediaeval cancelli.

The first construction phase of the naved church (the naos phase – building phase 3 in our previous excavation report\textsuperscript{29}) occurs at a stage where the rotunda building is substantially degraded, covered by soil deposits and collapsed stone blocks, conceivably plundered of its internal furnishings but also used as a dump, as a massive boulder discovered in trench T10 (fig. 33) indicates. The vestigial remains of the rotunda as well as the intramural fill undergo levelling, dismantling and cutting in order to set the foundations of the present naos and of the subfloor features associated with it. We do not have for now any other chronological marker available for the construction of the naos (building phase 3) except the Aquileian coins found in 2014 and 2015, which give a terminus ad quem at the end of the 14\textsuperscript{th} and the beginning of the 15\textsuperscript{th} century.

\textsuperscript{28} The exceptions are a mullion impost capital (BR2015718, W43; fig. 20) and perhaps the pluteus fragments (BR2015720 and BR2015721; fig. 15). To these could hypothetically be added the already known impost decorated with a cross (cf. M. Surić, Varvarina palaeochristiana, Diadora 16-17, Zadar, 1994-1995, p. 300, 304-305, reprinted in: Područje Šibenske županije od pretpovijesti do srednjeg vijeka I.D. HAD-a 19, (ed. B. Ćečuk), Zagreb, 1998, p. 180-185) as well as the fragment of the door-frame with an identical cross, kept in the lapidarium of Bribirska glavica. It cannot also be excluded that two of the ashlars found in one of the floors of the modern church (SU1042; fig. 36) belonged to the rotunda.

\textsuperscript{29} V. Ghica, A. Milošević, D. Dzino, Arheološki projekt Varvaria / Breberium / Bribir u 2014, p. 21 and fig. 8.

An additional point must be raised regarding the internal architecture of this first naved church. A wall fragment (W35) identified this year against the S wall of the naos, built on the foundation of the latter (W19), is situated somewhat in the projecting continuation of the wall W3, which belongs to the smaller northern annexe (fig. 4). The role of this wall remains to be clarified since it is rather the transversal wall W31 that can be interpreted as foundation of the choir screen.

\section*{2. RESTORATION AND CONSERVATION}

The walls of the rotunda exposed in the trenches opened inside the church of Sts Joachim and Ann (fig. 34.1-34.4) underwent reconstruction in order to make their display possible on the floor of the church (fig. 35). To do so, several operations were undertaken. The visible sections of the apsidal walls have been first consolidated and then their missing parts rebuilt to the height of the new floor laid in the church (140 cm for W44, to the NW [fig. 37], and 180 cm for the S end of W51, to the SE), which is lower than the one...
Fig. 34. Different stages of the excavation inside the church of Sts Joachim and Ann (A. Milosević).
were filled with compacted gravel (fig. 38.1). This was later caged under a limestone ground floor, over which was cemented a pavement made of limestone rectangular slabs (fig. 38.2-38.4). The pavement features a raised solea at the limit of the sanctuary platform, at the place where the iconostasis should be set in the future. For the needs of the excavation, it was necessary to remove the existing altar that had a mensa standing on a massive stipes. This was eventually replaced with a new altar supported by four limestone pillars, with a loculus for the relics in the centre of the mensa (fig. 38.5). Finally, a tabernacle has been arranged in the northern wall of the sanctuary and metal stairs have been installed in front of the main (western) and side (southern) doors.

3. CERAMIC MATERIAL

As it was the case in 2014, this season’s ceramic material was found, without exception, in later deposits, out of original context.

African imports dominate again the inventory with frequent African red slip and cooking ware, some with orlo annerrito, as well as amphorae, many of which too fragmentary to be typologically identified. From Italy come several bowls, thin-walled, with or without barbotine patterns, in terra sigillata italica or Italian imitations of African ware. Aegean ware is limited to a few shards of cooking vessels. Likewise, kitchenware and amphorae of Eastern Mediterranean provenance are rare, as are also the Pannonian imports, of which few fragments of red and black-slipped ware were turned up. Five fragments of flat bottom amphorae and possibly a beaker decorated with barbotine represent the Adriatic production. Especially noteworthy are three fragments of Central Gaulish shallow bowls Curle 23. As with the two types of local fabric described last year\(^\text{30}\), they appear on

coarse ware, a pot and a cooking bowl, along with non-diagnostic shards.

The mediaeval repertoire is once more particularly poor. Exceptional cases, such as fragments of tin-glazed pottery, can only confirm, still begging numerous questions, the manifold disturbance processes that the area underwent.

4. PHYSICAL ANTHROPOLGY

The osteological material recovered during the 2014 and 2015 seasons comes from the following contexts: southern sarcophagus in the mausoleum (minimum number of individuals [MNI] 8); ossuary E1 (T1; MNI 12); ossuary E2 (T1; MNI 17); ossuary E3 (T1; MNI 4); ossuary E4 (T1; MNI 5); ossuary E5 (T7; MNI 5); ossuary E6 (T7; MNI 7); E1 (T13; MNI 13); grave Gr1 (T3; NI 1); grave Gr3 (T9; NI 1); grave Gr4 (T8; NI 2); grave Gr5 (T7; NI 1); grave Gr6 (T7; NI 1); grave Gr7 (T10; NI 2); grave Gr10 (T11; NI 4); grave Gr11 (T11; MNI 14); grave Gr12 (T10/T13; MNI 16); grave Gr13 (T11; MNI 13); grave Gr14 (T11; MNI 38); grave Gr15 (T11; NI 5); grave Gr16 (T10; MNI 6); grave Gr17 (T11; MNI 10); SU1009 (T1; MNI 4); SU1098 (T11; MNI 10).
For trenches T1, T2 and T3 as well as for the secondary deposit in the southern sarcophagus of the mausoleum, the analysis of skeletons of which the sex could be determined revealed an unusual demographic ratio of 15 sub-adults, 2 females and 14 males, which, if confirmed in adjacent future trenches, remains to be explained. In trenches T7, T8, T9, T10, T11, T13, the ratio remains unbalanced, with 48 sub-adults, 28 females and 55 males.

Nine ante-mortem fractures (in the S mausoleum sarcophagus, ossuary E1 and graves Gr5, Gr11 and Gr12) and a shoulder dislocation (in grave Gr2) were recorded, all of which are consistent with accidental injuries. Eight of these fractures, located in the distal part of the shafts of tibiae and fibulae, suggest accidents caused by the rugged terrain of Bribirska glavica and its surroundings.

Numerous ante-mortem fractures on skulls, mostly on the frontal but also on the parietal bones, are rather clear indicators of interpersonal violence. These appear in the following contexts: Gr10 (skeleton A); Gr12 (skeletons B, D); Gr13 (skeleton E); Gr14 (skull B and skeleton sub-adult 2); E5; E6 (2 skulls); E1 (2 skulls); SU1098 (skeleton A). We note among these cases a 2.5-3.5 years old sub-adult with an oblong fracture on the left side of the frontal bone, a triply fractured skull (both in Gr14) and three female cranial fractures (E5, E6, E1).

Interpersonal violence is further evidenced by a series of peri-mortem injuries, largely distributed across the excavated trenches: Gr3 (48 mm long sharp edged fracture on the parietal bone, partly penetrating through the skull vault); Gr7 (skeleton A, displaying seven peri-mortem sharp edged injuries on legs and arms bones); Gr11 (sharp edged injury on second cervical vertebra); Gr14-E8 (sharp edged injuries on second, third and fourth cervical vertebrae); Gr16 (sharp edged injuries on the posterior-lateral side of left ulna and radius, resulting likely from a single blow). Particularly noteworthy is the location of the skeleton featuring multiple peri-mortem injuries in the sanctuary grave Gr7.

In addition to these forced traumas, the pathologic inventory includes two infectious diseases, leprosy and tuberculosis. Several probable cases of the former (on skull 2 in S mausoleum sarcophagus and skulls 1, 4 and 5 in E1; fig. 39), visible in the rounding and widening of the nasal aperture and the inflammatory changes in the nasal cavity and on the hard palate, require confirmation through DNA analysis. If these cases are validated as leprotic, the concentration of crania indicative of this pathology in two related deposited assemblages (in the closed southern sarcophagus and the nearby ossuary E1, trapped under the vault of mausoleum’s vestibule) is consistent with a collective, yet expeditious to say the least, burial. Tuberculosis is represented by one single individual (Gr1, skeleton D).

Lastly, numerous bones, equally distributed between graves inside and outside the present church, exhibit obvious traces of post-mortem rodent activity, a rare occurrence in Croatian osteological material, but well documented elsewhere\(^3\). The bones featuring gnawing marks have been either exposed on the ground surface in an open location or shallowly buried prior to their deposition in graves and ossuaries.

5. TERRESTRIAL LASER SCANNING

A 5 mm resolution lidar survey has been carried out on the areas excavated in 2014 and 2015 with a double purpose, archaeological and patrimonial. The full documentation of the backfilled trenches T10, T11 and T13 is thus available for further analysis and cultural heritage applications. The workflow included: point cloud and digital image acquisition with a stationary Leica P20 scanstation and a Nikon D5500 camera; data post-processing in Leica Cyclone 5.1; drawing in AutoCAD environment with Cloud Works 3.

The survey resulted in outputs angled according to the lines of research of our project: geo-referenced high resolution 3D modelling, micro-topography and building mapping, integrable in GIS and exploitable both in 3D reconstructions and outreach deliverables.

6. PHOTOGRAMMETRIC MODELLING

Several contexts, from whole trenches to single structures or stratigraphic sequences, have been photogrammetrically recorded for ex situ examination. The selection criterion for the documented contexts was their post-excavation inaccessibility. The processing of the point clouds was realised in Agisoft PhotoScan and MeshLab.

7. 3D MODELLING

Based on a workflow involving mainly ArchiCAD and Artlantis, the digital 3D reconstruction of the excavated monuments continued this year with models of two more
mediaeval churches (the Romanesque church at Vratnice, in NW part of the site, and the small gothic church next to the SW wall of the village cemetery) and the reshaping of rotunda’s initial model (fig. 40).

8. ARCHAEOLOGICAL DATABASE

Populating the ARK database remained one of the main post-excavation operations. The focus on the large number of items to record made the GIS component see limited progress this year.