New Studies in the Archaeology of Jerusalem and Its Region

Collected Papers
Volume XIV

Editors:
Yehiel Zelinger
Orit Peleg-Barkat
Joseph (Joe) Uziel
Yuval Gadot

Jerusalem 2021

Editors
Yehiel Zelinger
Orit Peleg-Barkat
Joseph (Joe) Uziel
Yuval Gadot

Languge Editors
Joseph (Joe) Uziel
Rachel Kudish-Vashdi

Editors of Excavation Reports
Viviana Moskovitch
Galit Samora-Cohen

Typesetting, Layout and Production
Hagar Maimon, Ira Bendersky

Cover
Reconstruction of the Royal Mansion from the First Temple Period at Armon Ha-Naẓiv (Drawing: Shalom Kveler, City of David Archive).

English cover: Marble Colonnette and Capital from the Royal Mansion at Armon Ha-Naẓiv (Photography: Shai Halevi).

POB 586, Jerusalem 91004
ISBN 978-965-406-744-7

Printed at Digiprint Zahav Ltd. 2021

CONTENTS

List of Contributors

Ghaleb Abu Diab, Israel Antiquities Authority	galeb@israntique.org.il
Uzi 'Ad, Israel Antiquities Authority	ad@israntique.org.il
Eran Arie, Haifa University	earie@univ.haifa.ac.il
Yotam Asscher, Israel Antiquities Authority	yotama@israntique.org.il
Rina Avner, Israel Antiquities Authority	rinaav@israntique.org.il
Uri Basson, Israel Antiquities Authority	ubasson@gmail.com
Nathan Ben-Ari, Israel Antiquities Authority	nathanba@israntique.org.il
Rifka Ben-Chelouche, Israel Antiquities Authority	rifka.pfister@hotmail.com
Yaakov Bilig, Israel Antiquities Authority	yaakovbilig@gmail.com
Elisabetta Boaretto, Weizmann Institute of Science	Elisabetta.Boaretto@weizmann.ac.il
Efrat Bocher, Center for Ancient Jerusalem and Bar-Ilan University	efratbocher@hotmail.com
Ortal Chalaf, Israel Antiquities Authority	ortalca11@gmail.com
Michael Chernin, Israel Antiquities Authority	michaelc@israntique.org.il
Anat Cohen-Weinberger, Israel Antiquities Authority	anatcowein@gmail.com
Benjamin, J. Dolinka, Israel Antiquities Authority	sherd_boy@hotmail.com
Daniel Ein-Mor, Israel Antiquities Authority	danieleinmor@gmail.com
Anna Eirikh-Rose, Israel Antiquities Authority	analexrose@gmail.com
Liora Freud, Tel-Aviv University	freudliora@gmail.com
Amos Frumkin, Hebrew University	amos.frumkin@mail.huji.ac.il
Father Arshak Gezira, Independent Scholar	Frarshakuni@yahoo.com
Lihi Habas, Hebrew University	habaslihi@gmail.com
Moran Hagbi, Israel Antiquities Authority	moranhb@gmail.com
Yael Kalman, Israel Antiquities Authority	yaelk@israntique.org.il
Anette Landes-Nagar, Israel Antiquities Authority	anetlandes@gmail.com
Dafna Langgut, Tel-Aviv University	dafna.langgut@gmail.com
Uzi Leibner, Hebrew University	leibner1@gmail.com
Ari Levy, Israel Antiquities Authority	ari_levy@hotmail.com
Tehillah Lieberman, Bar-Ilan University	tzil613@gmail.com
Oded Lipschits, Tel-Aviv University	lipschit@tauex.tau.ac.il
Avi Mashiach, Israel Antiquities Authority	avimashi@gmail.com
Barak Monnickendam-Givon, Israel Antiquities Authority	barak.monnickendam-givon@mail.huji.ac.il

Yossi Nagar, Israel Antiquities Authority	yossi@israntique.org.il
Yoav Negev, Israeli Caving Club	negevy@gmail.com
Jacques Neguer, Israel Antiquities Authority	negeur@yahoo.com
Brigitte, Ouahnouna, Israel Antiquities Authority	brigitte@israntique.org.il
Kate Raphael, Hebrew University	kate.raphael@mail.huji.ac.il
Amit Re'em, Israel Antiquities Authority	reem@israntique.org.il
Johanna Regev, Weizman Institute of Science	johanna.regev@gmail.com
Tehila Sadiel, Israel Antiquities Authority	tehilas@israntique.org.il
Deborah Sandhaus, Israel Antiquities Authority	debby.reen@gmail.com
Neria Sapir, Israel Antiquities Authority	neria@israntique.org.il
Lena Naama Sharabi, Hebrew University	naama.sharabi@mail.huji.ac.il
Katja Soennecken, German Protestant Institute of Archaeology	soennecken@bai-wuppertal.de
Nahshon Szanton, Israel Antiquities Authority	nahshon.sz@gmail.com
Yana Tchekhanovets, Ben-Gurion University	yanatchk@gmail.com
Shulamit Terem, Israel Antiquities Antiquity	shulamit.terem@gmail.com
Dorit Tsipshtein, Israel Antiquities Authority	doritt@israntique.org.il
Yehonatan Tzahor, Israel Antiquities Antiquity	tzahory@israntique.org.il
Joseph (Joe) Uziel, Israel Antiquities Authority	joeuziel@gmail.com
Yosef Vaknin, Israel Antiquities Authority	yossiv@israntique.org.il
Dieter Vieweger, German Protestant Institute of Archaeology	vieweger@bai-wuppertal.de
Filip Vukosavović, Israel Antiquities Authority	filiprvm@gmail.com
Azriel Yechezkel, Hebrew University	azriel.ye@gmail.com
David Yeger, Israel Antiquities Authority	davidye@israntique.org.il
Yehiel Zelinger, Israel Antiquities Authority	yehiel@israntique.org.il
Jennifer Zimni, German Protestant Institute of Archaeology	zimni@bai-wuppertal.de
Aliza van Zuiden, Israel Antiquities Authority	alizavanz@gmail.com

Editors

Yuval Gadot, Tel-Aviv University	ygadot@gmail.com
Orit Peleg-Barkat, Hebrew University	orit.peleg@mail.huji.ac.il
Joseph (Joe) Uziel, Israel Antiquities Authority	joeuziel@gmail.com
Yehiel Zelinger, Israel Antiquities Authority	yehiel@israntique.org.il

New Archaeological Study of the Armenian "Birds Mosaic" Chapel in Jerusalem

Amit Re'em, Ghaleb Abu Diab, Jacques Neguer, Yossi Nagar, Elisabetta Boaretto and Yana Tchekhanovets

Introduction

The Byzantine funerary chapel decorated with the "Birds Mosaic" was discovered in 1894, during construction activities north of the city walls in Jerusalem, in the Musrara neighbourhood (Anon. 1894; Schick and Bliss 1894; Séjourné 1894; Murray 1895; Owsepian 1895; Guthe 1895; Bliss and Dickie 1898:253–259). Its mosaic floor (Fig. 1), one of the best exemplars of Byzantine craftsmanship, decorated with a vine scroll springing from an amphora and populated with various birds, was accompanied by a memorial Armenian inscription (Stone 2002; CIIP I/2: No. 812).[1] A private house was built upon the findspot, as planned, and the ground-floor containing the mosaic remains was purchased by the Armenian Patriarchate of Jerusalem.

During the century following its discovery, the private museum of the "Birds Mosaic" was occasionally open to the public. Time and humidity greatly affected the physical condition of the mosaic and caused its rapid deterioration. In 2019, the Armenian Patriarchate, which had been concerned about the mosaic's state of preservation, and the Israel Antiquities Authority, initiated the mosaic's relocation to a newly equipped museum within the premises of the Armenian Quarter in the

[1] All Armenian inscriptions of the CIIP I/2 were deciphered and edited by M.E. Stone. The Greek inscriptions were deciphered and edited by L. Di Segni.

Fig. 1. Orthophoto of the "Birds Mosaic" (prepared by: A. Weigmann and S. Halevi).

Old City.[2] The lifting of the mosaic and its relocation were meticulously planned, taking into consideration the importance of the find and the possible complications

[2] The restoration project of the "Birds Mosaic" was undertaken by the Israel Antiquities Authority in 2019. The restoration team included G. Abu Diab, M. Diab, Z. Nadjad and M. Shkhada. Field photographs were provided by G. Abu Diab and N. Davidov; photogrammetric and graphic documentation by S. Halevi, A. Weigmann and V. Essman, drafting by O. Rose. This work would not be possible without the help and support of His Beatitude Archbishop N. Manougian, the Armenian Patriarch of Jerusalem, and head archaeologist of Jerusalem district of the IAA, Y. Baruch. We also wish to thank B. Tury of the Jerusalem district of the IAA for his valuable assistance.

of the work within a confined space suffering from high humidity. The restoration process lasted more than a year, providing important new data regarding the mosaic technique in all its work stages and a precise dating of the finds. It also allowed for the identification and documentation of the long-lost burial crypt of the funerary chapel beneath the mosaic floor. This paper presents the new finds obtained from this research, backed by advanced visual documentation and laboratory analysis. These data are further contextualized with the nineteenth-century finds within the large extramural monastic quarter, including institutions built to the north of the city during the Byzantine period, whose remains were discovered during the last hundred years.

The "Birds Mosaic" and Its Archaeological Context

The numerous nineteenth-century reports, and later studies, mainly concentrated on the artistic qualities of the "Birds Mosaic,"—one of the first of its kind to be discovered in the Holy Land—and on deciphering the Armenian inscription. The archaeological context, however, was not described in detail and therefore, will be summarized below, including all the available data that had accumulated over a hundred years of study.

The mosaic floor measures 3.38 × 8.10 m and consists of a central panel and a small apse. The central, rectangular section is decorated with vine scrolls, sprouting from an amphora flanked by two peacocks; the scrolls are populated with various birds, and the whole carpet is framed by a guilloche. The semicircular small apse panel in the east is embellished with a chalice full of fruits, flanked by two pairs of birds on a field of flowers. The mosaic inscription, in ancient Armenian *erkatagir* script, is placed in a *tabula ansata* (Fig. 2) between the main carpet and the apse. It is a dedication inscription, reading: "For the memorial and salvation of all Armenians whose names the Lord knows" (CIIP I/2: No. 812).

According to Bliss and Dickie (1898:253), a cavern measuring nearly 3.5 sq m, containing human remains, was located beneath the southwestern corner of the mosaic floor. Accompanying small finds included some glass vessels and pottery lamps dated to the fifth–sixth centuries CE. Séjourné (1894:628) also mentions a stone slab with a Greek funerary inscription discovered in the area. An additional marble slab, with a cross and an Armenian *erkatagir* inscription mentioning Petros and Yohan, was found at some distance from the mosaic pavement (Schick and Bliss 1894:260). The slab, broken into six or seven fragments, disappeared without a trace soon after its discovery. According to the primary publication (Anon. 1894), the finds from the site were taken by the Ottoman authorities to Istanbul. However,

Fig. 2. Armenian inscription of the "Birds Mosaic" (Photography: G. Abu Diab and N. Davidov).

the transferring of the broken slab seems improbable as the mosaic was left *in situ*; perhaps, the dispersed broken finds were not a matter of concern for the city authorities and were simply lost. No drawing or photograph of the slab are known, although the inscription can be reconstructed according to the written reports of nineteenth-century explorers (Owsepian 1895:89): "Having remembered Petros who made and Yohan who commissioned this cross." It seems that the lost inscription was originally a piece of church furniture decorated with a cross and inscribed by its donors. A stone bowl engraved with Greek and Armenian inscriptions, reported nearly two decades ago as originating from the chapel, should be regarded as a nineteenth-century forgery and must be excluded from the corpus of finds relating to the ancient Armenian community (Tchekhanovets 2015).

The discovery of the chapel with its beautiful mosaic attracted much scholarly attention, but only the research of its surroundings enabled its placement within its

historical and archaeological context. In a series of salvage excavations undertaken in the Musrara neighbourhood, first during the 1930s and later in the 1990s–2000s, significant portions of an extramural "monastic quarter" were discovered (Fig. 3), including many ecclesiastical institutions, possibly the largest in Jerusalem (Sukenik and Mayer 1930; Baramki 1938; Ben-Arieh 1973; Chambon 1990; Tzaferis et al. 1991, 1996, 2000; Amit et al. 1993; Shukron and Savariego 1993; Stone and Amit 1997; Abu Raya 1998; Amit and Wolf 2000; Adawi 2005; Re'em 2009; Zilberbod 2011; Di Segni and Gellman 2017; Tchekhanovets 2020). Altogether, at least four different

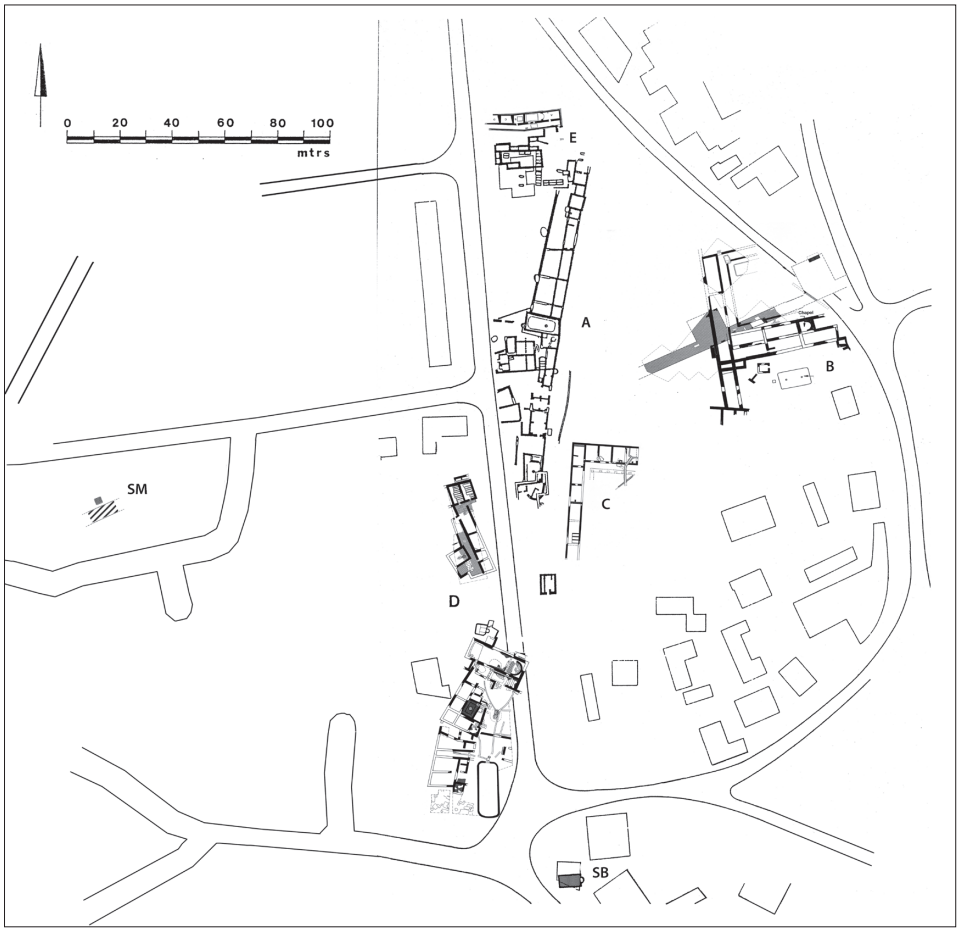

Fig. 3. Extramural monastic complex in the Musrara neighbourhood: 'Birds Mosaic', Schick and Bliss excavations (SB); Sukenik and Mayer excavations (SM); the Armenian Monastery (A, B, C, D), and E – excavation areas of the IAA Third Wall project (plan by S. Matskevich, after Avni 1997).

monasteries were discovered in the new excavations, consisting of residential units that most probably served local monks and pilgrims, three small churches, four bathhouses, and various installations including kitchens, ovens, water cisterns and channels. Numerous tombs were integrated in the monastic complexes, within hewn and built crypts, forming part of the northern necropolis of Jerusalem (Avni 1997:309–342; 2005).

In addition to the chapel decorated with the "Birds Mosaic," remains attesting to the presence of Armenians in this quarter were discovered and comprehensively studied in the southern part of the complex (Stone 1997, 2002; Stone and Amit 1997; Amit and Wolff 2000). Recently, an additional portion of the "Armenian monastery" was exposed in its west by Rina Avner (pers. comm.).[3] This "Armenian monastery" included a small church with subterranean burials, residential units and an elaborate water system comprising a large reservoir, a number of smaller cisterns and numerous water channels. The foundation of the complex was dated to the fifth–sixth centuries CE; it was significantly expanded in the mid-seventh century CE by the addition of some residential units, a bathhouse and a reception hall, and by extending the church and embellishing it. The characteristics of the complex attest to its function as a monastic institution, as well as a pilgrim's hostel, at least in its later stage. The structure was abandoned sometime during the Abbasid period, in the eighth–ninth centuries CE. One of the most interesting features of the complex is the combination of Greek and Armenian mosaic dedicatory inscriptions, discovered respectively in the church and in the reception hall and dated to the seventh century CE (CIIP I/2: Nos. 809 and 817).

Perhaps the foundation of the entire extramural quarter should be related to nearby St. Stephen's Basilica (Vincent and Abel 1922:766–804; Goldfus 1997:117–118). The burial place of the protomartyr became one of the most holy sites in the city, attracting many visitors. It is also possible that the cluster of institutions found in the Musrara neighborhood was a result of natural growth in pilgrimage facilities located outside the city walls, along one of the main roads leading to Jerusalem from the north. The construction in the area began in the mid-fifth century CE and continued uninterruptedly until the eighth–ninth centuries, when it was finally abandoned. All of the excavations yielded ceramic evidence dated mainly to the Late Byzantine and Umayyad periods; other finds included numerous coins, glass vessel

[3] The final report of the 'Third Wall Excavation Project' is under preparation by J. Seligman (IAA).

assemblages, marble decorative fragments and liturgical furniture, reliquaries, and metal and bone tools. Clearly, the remains of the chapel of the "Birds Mosaic" and the "Armenian Monastery" were integral parts of the surrounding monastic quarter. Their architectural, constructional and decorative characteristics are similar to those of the other neighboring institutions; they only differ from them in the use of the Armenian language (Tchekhanovets 2018:93).

The Rediscovery of the Crypt

The ancient structure containing the "Birds Mosaic" was interpreted as a funerary chapel mainly due to discovery of a burial crypt beneath the floor, which also influenced the precise dating of the structure, and the social and ethnic identity of its builders and the interred. The only researcher who saw the small natural cave under the mosaic floor was Bliss, in 1894; the cave was seemingly never explored since.

In the current project, one of the members of the Armenian community visiting the site recalled that as a child he had entered the crypt. He managed to lead us to a rusty manhole cover in the courtyard of the building, several steps from the main door of the nineteenth-century building, close to its southern wall. After breaking the manhole cover, we found the square opening that led into the crypt.

The square opening was created by the nineteenth-century builders to fit the ancient hewn shaft (0.85 × 0.60 m, 1.69 m deep). The shaft leads to a hewn small antechamber (1.70 × 0.58 m, 1.28 m high), with a gabled ceiling built of two stone slabs. Two low steps lead from the floor of the antechamber to a rectangular opening (0.92 × 0.58 m), with one additional step leading down to the burial cave. The crypt (Figs. 4, 5; 3.6 × 3.4 m, 1.2 m high) is of irregular shape and was hewn in the hard limestone bedrock (Fig. 5). It may have been a natural cave, reshaped and used for burials prior to the Byzantine period. The ceiling of the cave is 1.54 m beneath the mosaic. On the ceiling, modern graffiti was discovered, consisting of two uncial Armenian letters, U and Յ, inscribed in pencil; this is the monogram of the Armenian St. James Brotherhood (Սրբոց Յակոբ).

Osteological Studies

Disarticulated bones were discovered in the cave (Fig. 6). Thye were piled up in the northeastern corner of the cave, attesting to their secondary deposition, making the reconstruction of the original burial postures and orientations impossible. The bones were mostly fragmentary and in a poor state of preservation. It appears that most of the damage occurred during their initial exposure in the late nineteenth century and during occasional visits to the crypt during the twentieth century. Small fragments

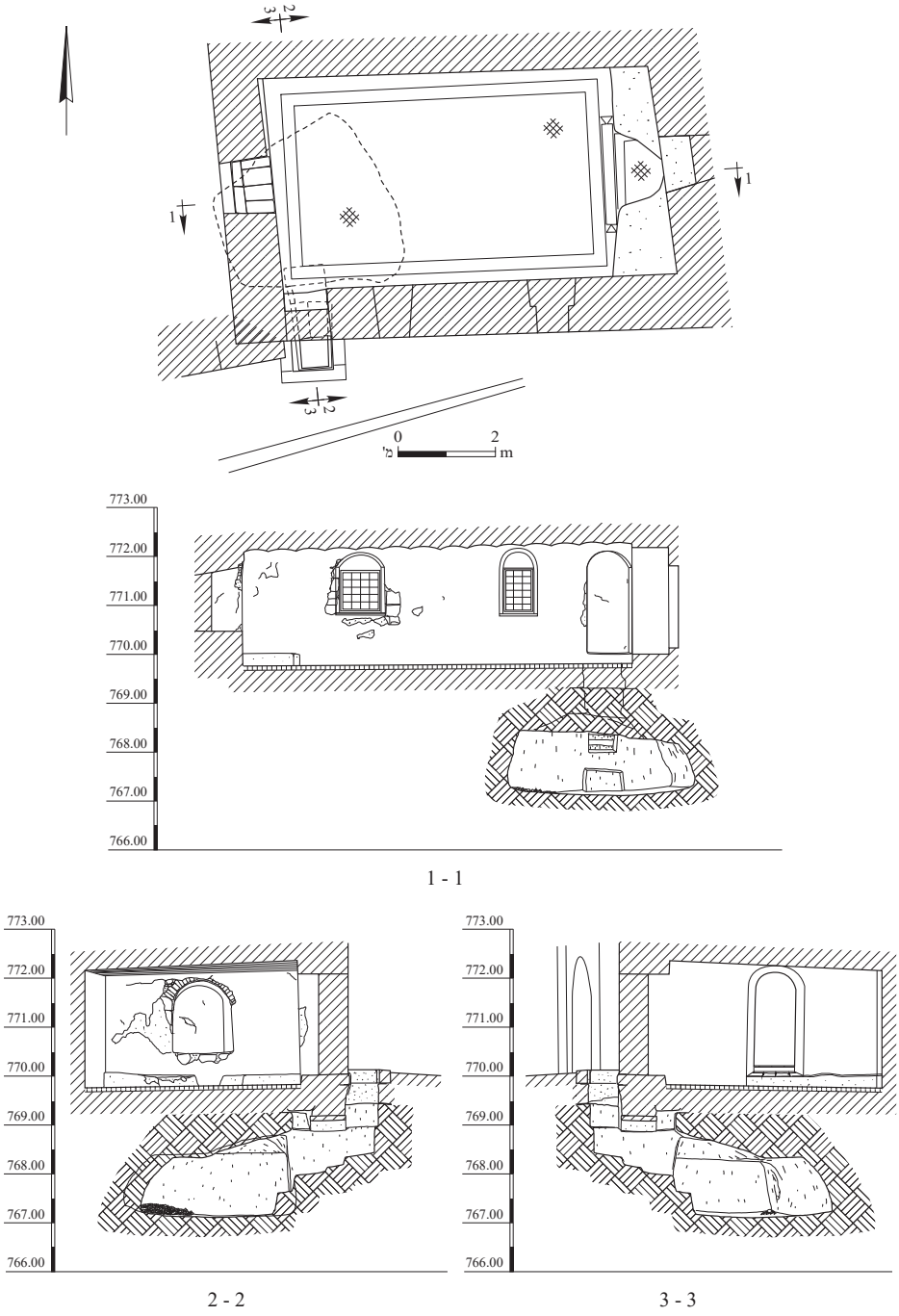

Fig. 4. Plan and sections of the chapel and crypt (drafting: O. Rose).

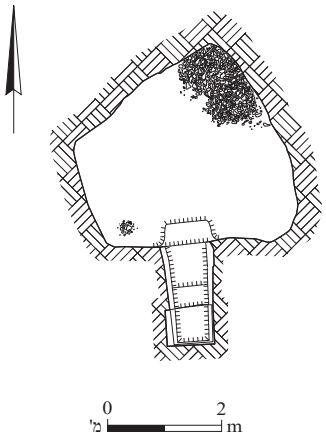

Fig. 5. Plan of the crypt (drafting: O. Rose).

of modern glass, metal and plastic were found between the bones. The bones were collected, typologically classified and studied on-site, and then returned to the cave for reburial.

The osteological remains contained cranial, teeth and postcranial fragments, representing at least 17 individuals. These included three children aged 2–3, 2–5, and 3–10 years, and 14 adults. Due to the fragmentary nature of the bones, the age of most adults was generally estimated as >18 years, based on epiphyseal closure of the proximal head of the femoral bones (Johnston and Zimmer 1989). However, based on tooth attrition stages (Hillson 1986:176–201), a narrower estimation for three of the adults was possible (15–20, 20–35, and >40 years), attesting that the age-at-death distribution of the adult individuals in this small sample spanned a wide range. Based on measurements of the vertical diameter of the femoral heads (Bass 2005:230), males and females were represented in nearly equal proportions (four vs. three respectively). Due to the fragmentary preservation of the bones, no trauma marks could be identified, overruling, at least at this state of research, the interpretation of the burial as a mass grave or Armenian martyrium, dating to the Persian conquest of Jerusalem in 614 CE, or a military grave, as previously suggested (Hintilian 1976:15; Nagar and Arbel 2017). The demographic data excludes the interpretation of the burial as a common grave for local monks or nuns (Séjourné 1894); the presence of children in the assemblage also rules out the possibility of a pilgrim grave (Dashian 1901:165). On the contrary, the human skeletal assemblage, in spite of its small sample size, seams to represent a standard civilian population

Fig. 6. The bones as discovered in the crypt, looking north (Photography: G. Abu Diab and N. Davidov).

including men, women and children. It is important to note that a similar burial crypt containing piles of bones, still unstudied, was discovered within the territory of the Byzantine Armenian Monastery on the Mount of Olives (Tchekhanovets 2018:67–70). Altogether, the monastic complexes and the burials associated with them (usually in subterranean hewn crypts) discovered in the immediate proximity of the "Birds Mosaic," contained hundreds of deceased, forming the northern necropolis of Jerusalem during the Byzantine and Early Islamic periods (Avni 1997:309–342; 2005). The earliest burials in this area, located immediately outside the city walls already date to the Roman period (Avni 2005), although it seems that the necropolis was significantly expanded during the Byzantine period, due to the establishment of the St. Stephan Basilica and its burial crypts (Goldfus 1997:118–127).

To determine the chronology of the burials, radiocarbon dates were obtained for two bone samples: one of an adult and one of a child. The bones were prepared at the D-REAMS Radiocarbon Laboratory at the Weizmann Institute. The bones were pre-treated according to the procedure described in Boaretto et al. 2009 and measured using the accelerator mass spectrometry method at D-REAMS (Regev et al. 2017). The calibrated ranges were calculated using OxCal v4.4.4.©Bronk ramsey (2021)

(Bonk Ramsey 1997, 2001) and the new calibration curve Calib20 (Reimer et al. 2020). The results are summarized in Table 1 (Fig. 7).

To increase the precision, the two dates were combined. As they pass the X2-Test, they may be considered as belonging to the same event. The combined calibrated range of the two samples include the fifth and the first half of the sixth century CE, due to a calibration plateau in this period. It is also possible that bones were brought from nearby ancient tombs and reburied in the crypt. If this is the case, the radiocarbon dates reflect the time of death, but not the actual moment of their entombment in the crypt where they were found. The date also poses questions regarding the correlation between the interments in the crypt and the chapel mosaic, as the inscription is dated according to stylistic criteria, to the sixth century CE (Stone 2019), and on paleographic grounds, to the sixth–seventh centuries CE (CIIP I/2: No. 812). This may indicate that the inscription, and perhaps the entire mosaic, are later additions to the mortuary chapel.

The Mosaic and Its Preparatory Design

The lifting and on-spot restoration of the "Birds Mosaic" provided important new data regarding technical aspects of the mosaic work and establishment of its building phases. The most significant finding was the discovery of a polychrome preparatory design (*sinopia*) beneath the central mosaic carpet (see below).

Initially, the mosaic was cleaned and meticulously documented, using photography, photogrammetry and graphic documentation on a 1:1 scale. An excavation probe

Table 1. Radiocarbon Results of the Two Bones from the Crypt
(the combined age of the bones is in bold).

Lab No.	Field ID	Type	pMC± 1σ	Calibrated Range CE ± 1σ 68.3% probability	Calibrated Range CE ± 2σ 95.4% probability
RTD 10162	Crypta adult	Bone	81.66 ± 0.30	410 (27.8%) 440 460 (12.8%) 480 485 (27.8%) 535	400 (95.5%) 545
RTD 10163	Crypta young	Bone	82.13 ± 0.29	435 (59.4%) 520 525 (7.9%) 540	420 (95.4%) 555
Combined Age		**X2-Test: df=1 T=1.36(5% 3.8)**		**420 (14.2%) 440 450 (20.0%) 480 495 (34.1%) 535**	**415 (95.4%) 540**

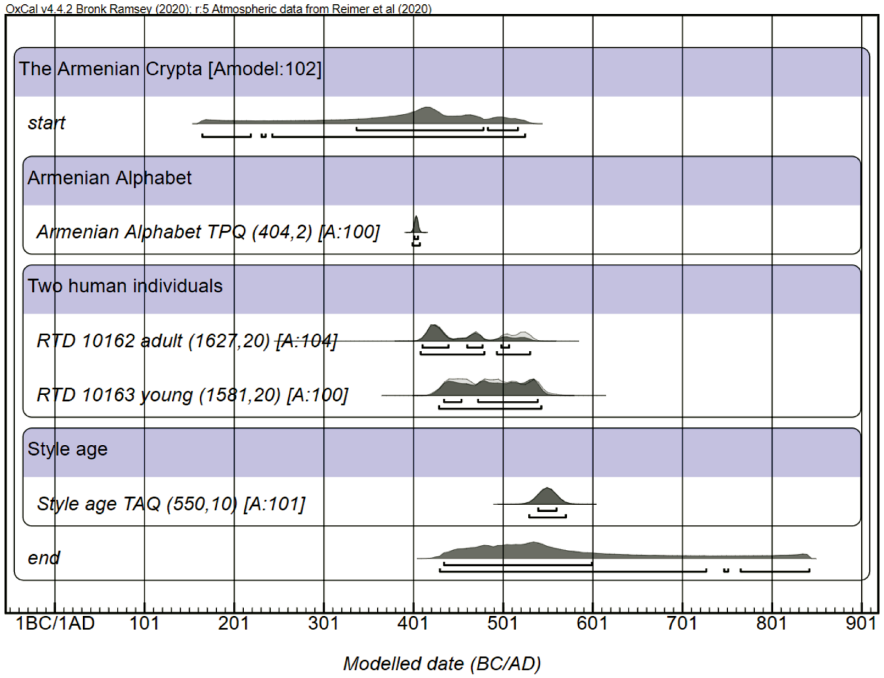

Fig. 7. Carbon-14 results.

between the apse and the wall of the nineteenth-century building allowed for a close observation of the foundation layers of the mosaic and the establish ment of the stages for lifting the mosaic, beginning with the apse, followed by the inscription and finally, the central carpet. The lifting of every panel was followed by a study of the original materials and their superposition.[4]

Based on the superposition of the layers, the order of the ancient mosaicists' work can be established as thus: first, the white margins and the guilloche frame were laid; then, the central carpet composition and the inscription were placed; and finally, the small apse mosaic was added. All parts were built in a similar manner, using the same raw materials, but with variations in the thickness of the layers and the characteristics of the mortars. The *statumen* (Vitruvius, *De architectura* VII A 1, 5; for the layers and

[4] The sampling of building materials, including tesserae, mortars and pigments was undertaken by Y. Asscher of the IAA. The detailed results of the ongoing laboratory analyses of mineralogy, petrography, mortars and pigment compositions will be published in a future report. Here we present the preliminary results of the field research based mainly on the naked eye.

process of creating a mosaic floor, see Vitruvius, *De architectura*, VII A 1–7), the lower foundation layer of the mosaic, was placed directly upon bedrock, comprising 50–60 mm stones mixed with clay soil. Only in the apse, two layers of *statumen* were noted, comprising 50–60 mm and 70–100 mm stones. The thick *rudus* layer of lime mortar overlies the *statumen*, composed of stone powder and crushed limestone aggregates, reaching a thickness of 40–50 mm beneath the main carpet, and 50–60 mm beneath the inscription and the apse. It seems that ash was also used in the *rudus* in the apse, possibly to reinforce the mortar. The next layer, the *nucleus*, was composed of a 15–20 mm thick lime mortar with small, crushed limestone aggregates up to 2 mm in size. Under the white band framing the mosaic, the *nucleus* and *rudus* were not observed as separate layers, with a single homogeneous, 50 mm thick layer of lime mortar, composed of stone powder and crushed limestone aggregates. The mosaic in its entirety, the *tesselatum*, was composed of 10–13 mm size tesserae of red, yellow, green, black and white hews, lying on a fine mortar, composed of fine lime and stone powder.

The preparatory underpainting (*sinopia*),[5] presenting the detailed outline of the vine scroll populated with birds, was discovered on the lime mortar under the tesserae of the central carpet (Figs. 8, 9). The design was performed in the fresco technique, using three pigments: green, red and black. When the surface was almost dry, a fresh binding solution was applied in small patches, in preparation placing the mosaic fragments (Larionov and Frolov 2019:94). The tesserae were inserted into the fresh mortar, according to the painted design, in rows, starting from the upper part of the composition.

Interestingly, no traces of a *sinopia* were discovered under the guilloche frame, the inscription and the apse of the chapel. This, alongside the slight differences in the tesserae layout between the main carpet and the inscription (Fig. 10), and between the inscription and the apse, support the assumption that the inscription and the apse belong to a later technical stage of work, which occurred after the laying of the main mosaic carpet.

The discovery of the *sinopia* under the central mosaic was accomplished based on previous experience from the lifting of the Roman-period Lod Bestiary mosaic (Fig.

[5] The term *sinopia* normally refers to an underpainting sketch for a fresco in red ochre, a pigment originating from the city of Sinop on the southern shores of the Black Sea (modern Turkey). This technique was largely used from the Classic Antiquity until the Renaissance. In Greece, where the technique was developed, and in the Roman Empire, it was also used in mosaic production, where only one pigment was used, mainly red ochre or carbon black.

Fig. 8. The preparatory underpainting (sinopia) discovered beneath the mosaic (Photography: G. Abu Diab and N. Davidov).

11). At Lod, the polychrome preparatory design, the first of its kind, made use of five different pigments (Piovesan, Maritan and Neguer 2014). Following this, other attempts were made to locate any possible traces of preparatory work at every site where the IAA restoration unit was involved in mosaic studies. The discovery of a *sinopia* outline beneath another mosaic in the same Roman building at Lod heightened the huge gap in our knowledge of the technical details of mosaic work of the ancient artisans. Recent investigations of the backing mortars of Byzantine mosaics from

Fig. 9. Detail of the sinopia (Photography: G. Abu Diab and N. Davidov).

Fig. 10. Layout of the tesserae between the main mosaic carpet and the inscription (Photography: G. Abu Diab and N. Davidov).

Ḥura, ʻAluma and Ḥorbat Fatot, in which different methods for executing *sinopiae* were revealed, clearly showed that preparatory designs were an integral part of mosaic art in Roman and Byzantine Palaestina.

To locate the underpainting of a mosaic, a special restoration technique was developed, permitting the lifting of the panels with a minimal loss of the original material, i.e., by drilling lines of holes between the *nucleus* and *rudus* layers. When the detachment of the two layers was complete, the *tesselatum* was detached from the *nucleus* using the traditional method of lifting by inserting iron pegs between

Fig. 11. Sinopia discovered under the fish panel of the Lod mosaic (Photography: G. Abu Diab and N. Davidov).

the layers. In this manner, the mortar panel with the *sinopia* could be consolidated separately with gauze and glue and transported to the laboratory for conservation. By the end of the project, nearly 10 sq m of the *sinopia* were conserved. As a result of the new restoration technique, the preparatory work of the ancient masters, hidden under the layer of tesserae, finally came to light, exposing the first known example of such *sinopiae* dating to the Byzantine period.

Discussion

The "Birds Mosaic" and contemporary mosaics on the summit of the Mount of Olives (for summary, see Tchekhanovets 2018:41–76), have long served as the focus of Armenian art studies (Arakelian 1978; Narkiss 1979; Evans 1982; Britt 2011). The appearance of mosaic floors in Armenian sites in Byzantine Jerusalem was regarded a rare phenomenon, since this art was practically unknown in the ancient churches of Armenia. Scholars have discussed the national Armenian symbolism of the Jerusalemite compositions, its connection to the Armenian theological heritage, and even the possible identification of specific Armenian fauna. The first to refer to the mosaics of the Holy Land with Armenian inscriptions as representing a local artistic tradition, both in style and iconography, was N. Stone. Unfortunately, her research presented in the conference on Armenian Studies in Trier in the early 1970s, was only published recently (Stone 2019). In recent years, extensive archaeological studies in the region increased the corpus of mosaics from the Holy Land, totaling hundreds of examples.[6] The inhabited vine scroll was identified as one of the most popular patterns in the mosaic art of churches and synagogues in the Holy Land. The appearance of this motif dates to the fifth century CE, with a peak in the sixth century CE. The vine scrolls are inhabited by various animals, birds, objects and human figures, and often form vintage, pastoral and hunting narrative cycles (Hachlili 2009:111–147; Talgam 2014:86–96, 198–200).

The technical characteristics of the "Birds Mosaic" defined in the current archaeological project place it within the general corpus of Byzantine mosaic floors of the fifth and sixth centuries CE, performed by local highly skilled masters. According to the defined building phases, the Armenian inscription was added to the main mosaic carpet in the last stages of the work. It is most probable that the

[6] The bibliography on mosaic floors of the region is enormous. To note some of the main studies: Avi-Yonah 1933–1934; Ovadiah and Ovadiah 1987; Hachlili 2009; Maddan 2014; Talgam 2014; for Jordan, see Piccirillo 1993.

inscription panel was also commissioned by local masters, under the supervision of the Armenian customers who ordered it. The corpus of Armenian mosaic inscriptions from Jerusalem is not very large, and includes repairs made to a mosaic floor on the Mount of Olives mentioning the "Reverend Yakob," performed by a craftsman who did not know Armenian (CIIP I/2: No. 837), as well as the unskilled Armenian signature of a certain Grigor set in the mosaic floor of the Monastery "of Theodosius and Cyriacus," which may be interpreted as a sign of the involvement of the Armenian monks in its construction (Stone et al. 2011).

The new evidence from the "Birds Mosaic" contributes to our understanding of the Armenian building activity in Byzantine Jerusalem. Here too the standard repertoire of Holy Land ecclesiastical art and architecture prevails, with no use of original forms developed in sixth–seventh-century CE Caucasus, such as cruciform and circle shaped churches, tetraconchs, conical domes and decorative stone reliefs (for further discussion, see Tchekhanovets 2018:230–233).

Various theories regarding the identification of the site were drawn by scholars in the past, based on the Armenian dedicational inscription. Some proposed that this was the chapel of St. Polyeuctos, mentioned in a rather unreliable Armenian source known as the *List of Anastas vardapet* (Sanjian 1969), while others suggested that it was a monument for unknown Armenian soldiers, pilgrims or war victims (for a detailed discussion, see Stone 2002). It seems, however, that the Armenian inscription commemorating "all Armenians whose names the Lord knows" follows similar, common Greek formulae, well-attested in the epigraphic record of Byzantine Jerusalem (Clermont-Ganneau 1899:336; for similar Greek inscriptions, see CIIP I/2: Nos. 793, 794, 819, 854, 869, 1084).

In our opinion, the recent rediscovery of the burial crypt, predating the construction of the mosaic floor, with its varied skeletal remains of men, women and children, may contribute to the reconstruction of a possible scenario of their interment. As the historical and archaeological sources do not attest to the existence of an Armenian lay community in Byzantine or Early Islamic Jerusalem (Di Segni and Tsafrir 2012; Tchekhanovets 2018), and as the human remains do not allow for an unequivocal identification of a military, monastic or pilgrim population, it seems that the human remains did not belong to individuals of Armenian origin, contrary to the rendering

of the inscription: "for memorial and salvation of all Armenians."[7] It is possible that in its initial stages, the crypt indeed served for the burial of Armenian monks and pilgrims. One may also speculate that the Armenian builders of the chapel collected bones from nearby tombs, assuming, based on local traditions, that they had belonged to Armenians; all the deceased were commemorated in an appropriate inscription.

References

Abu Raya R. 1998. Jerusalem, the Third Wall. *Excavations and Surveys in Israel* 18:84–87.

Adawi Z. 2005. Jerusalem, near the Third Wall. *Hadashot Arkheologiyot–Excavations and Surveys in Israel* 117 (June 19). http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=199&mag_id=110 (accessed June 16, 2021).

Amit D. and Wolff S. 2000. An Armenian Monastery in the Morasha Neighborhood, Jerusalem. In H. Geva ed. *Ancient Jerusalem Revealed* (reprinted and expanded ed.). Jerusalem. Pp. 293–298.

Amit D., Wolff S. and Gorzalczany A. 1993. Jerusalem, the Third Wall (Area D). *Excavations and Surveys in Israel* 13:80–83.

Anon. 1894. New discovery of Armenian antiquities in Jerusalem. *Nor Dar* 134:1–2 (Armenian).

Arakelian B.N. 1978. Armenian Mosaics in the Early Middle Ages. In *Atti del primo Simposia interna di arte Armena (Bergamo, 28–30 giugno 197*5). Venice. Pp. 1–9.

Avi-Yonah M. 1933. Mosaic Pavements in Palestine. *Quarterly of the Department of Antiquities in Palestine* 2:136–181.

Avi-Yonah M. 1934. The Byzantine Church at Suhmata. *Quarterly of the Department of Antiquities in Palestine* 3:92–105.

Avni G. 1997. *The Necropolis of Jerusalem and Beth Govrin during the 4th–7th Centuries A.D. as a Model for Urban Cemeteries in Palestine in the Late Roman and Byzantine Periods.* Ph.D. diss. The Hebrew University. Jerusalem (Hebrew; English summary, pp. 1–12).

[7] Due to COVID 19 constraints, isotope analysis of the human remains was not undertaken. Hopefully, such research will become possible in the near future, helping to establish the ethnic origins of the individuals buried in the crypt. In addition, a comprehensive anthropological and osteoarchaeological study of human skeletal material based on skeletal remains buried in the crypt of St. Stephen's Monastery in Jerusalem, confirmed a significant component of non-locals at the monastery, some of Levantine origin, and some Europeans (Sheridan and Gregoricka 2015).

Avni G. 2005. The Urban Limits of Roman and Byzantine Jerusalem: A View from the Necropolis. *Journal of Roman Archaeology* 18:373–396.

Baramki D.C. 1938. Byzantine Remains in Palestine: A Small Monastery and Chapel Outside the 'Third Wall'. *Quarterly of the Department of Antiquities in Palestine* 6:56–58.

Bass W.M. 2005. Human Osteology: A Laboratory and Field Manual (5th ed.). Columbia, Mo.

Ben-Arieh S. 1973. Excavations along the Third Wall in Jerusalem. *Qadmoniot* 6:111–113 (Hebrew).

Bliss F.J. and Dickie A.C. 1898. *Excavations at Jerusalem 1894–1897.* London.

Boaretto E., Wu X., Yuan J., Bar-Yosef O., Chu V., Pan Y., Liu K., Cohen D., Jiao T., Li S., Gu H., Goldberg P. and Weiner S. 2009. Radiocarbon dating of charcoal and bone collagen associated with early pottery at Yuchanyan Cave, Hunan Province, China. *Proceedings of the National Academy of Sciences* 106:9595–9600. https://doi.org/10.1073/pnas.0900539106.

Britt K. 2011. Identity Crisis? Armenian Monasticism in Early Byzantine Jerusalem. *Aramazd: Armenian Journal of Near Eastern Studies* VI/1:128–153.

Bronk-Ramsey C. 1995. Radiocarbon Calibration and Analysis of Stratigraphy: the OxCal Program. *Radiocarbon* 37/2:425–430.

Bronk-Ramsey C. 2001. Development of the Radiocarbon Program OxCal. Radiocarbon 43/2A:355-363.

Chambon A. 1990. Jerusalem, Notre Dame Monastery. *ESI* 9:145–147.

CIIP I/2: H.M. Cotton, L. Di Segni, W. Eck, B. Isaac, A. Kushnir-Stein, H. Misgav, J. Price and A. Yardeni eds. *Corpus Inscriptionum Iudaeae/Palaestinae* I/2: *Jerusalem 705–1120*. Berlin–Boston 2012.

Clermont-Ganneau C. 1899. *Archaeological Researches in Palestine during the Years 1873–1874* I. London.

Dashian J. 1901. Anhang. *Zeitschrift des Deutschen Palästina-Vereins* 24:166.

Di Segni L. and Gellman D. 2017. A Justinian Inscription North of Byzantine Jerusalem, and Its Importance for the Dating of the Nea Chuch Inscription. In Y. Gadot, Y. Zelinger, K. Cytryn-Silverman and J. Uziel eds. *New Studies in the Archaeology of Jerusalem and Its Region* XI. Jerusalem. Pp. 27*–37*.

Di Segni L. and Tsafrir Y. 2012. The Ethnic Composition of Jerusalem's Population in the Byzantine Period (312–638 CE). *Liber Annuus* 62:405–454.

Evans H. 1982. Nonclassical Sources for the Armenian Mosaic near the Damascus Gate in Jerusalem. In N.G. Garsoïan, R.W. Thomson and T.F. Mathews eds. *East of Byzantium: Syria and Armenia in the Formative Period*. Washington. Pp. 217–222.

Goldfus H. 1997. *Tombs and Burials in Churches and Monasteries of Byzantine Palestine (324–628 A.D.)*. Ph.D. diss. Princeton University. Princeton, N.J.

Guthe H. 1895. Mosaiken mit armenischer Inscrift auf dem Oelberge. *Mitteilungen und Nachrichtunger des Deutschen Palästina-Vereins* 1:53.

Hachlili R. 2009. *Ancient Mosaic Pavements: Themes, Issues, and Trends*. *Selected Studies.* Leiden–Boston.

Hillson S. 1986. *Teeth*. Cambridge.

Hintilian K. 1976. *History of the Armenians in the Holy Land*. Jerusalem.

Johnston F.E. and Zimmer L.O. 1989. Assessment of Growth and Age in the Immature Skeleton. In M.Y. Işcan and K.A.R. Kennedy eds. *Reconstruction of Life from the Skeleton.* New York. Pp. 11–21.

Larionov A. and Frolov A. 2019. Some Observations on the Mosaic Pavements in Lod, Huqoq and Wadi Hamam. In A.V. Zakharova, S.V. Maltseva and E.Y. Staniukovich-Denisova eds. *Actual Problems in Theory and History of Art* 9. St. Petersburg. Pp. 90–97.

Maddan A. 2014. *Corpus of Byzantine Church Mosaic Pavements from Israel and the Palestinian Territories.* Louvain.

Murray A.S. 1895. The Mosaic with Armenian Inscription from near the Damascus Gate, Jerusalem. *Palestine Exploration Quarterly* 27:126–127.

Nagar Y. and Arbel Y. 2017. Soldiers' Graves in Mamluk Jaffa. *Israel Exploration Journal* 67:232–246.

Narkiss B. 1979. The Armenian Treasures of Jerusalem 1: Mosaic Pavements. In B. Narkiss ed. *Armenian Art Treasures of Jerusalem*. New Rochelle, N.Y. Pp. 21–28.

Ovadiah R. and Ovadiah A. 1987. *Hellenistic, Roman and Early Byzantine Mosaic Pavements in Israel* (Bibliotheca archaeologica 6). Rome.

Owsepian K. 1895. Mosaik mit armenischer Inschrift im Norden Jerusalem. *Zeitschrift des Deutschen Palästina-Vereins* 18:88–90.

Piccirillo M. 1993. *The Mosaics of Jordan* (ACOR Publications 1). Amman.

Piovesan R., Maritan L. and Neguer J. 2014. Characterizing the Unique Polychrome Sinopia Under the Lod Mosaic, Israel: Pigments and Painting Technique. *Journal of Archaeological Science* 46/1:68–74.

Re'em A. 2009. Jerusalem, the Third Wall. *Hadashot Arkheologiyot–Excavations and Surveys in Israel* 121 (July 12). http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1144&mag_id=115 (accessed June 16, 2021).

Regev L. , Steier P., Shachar Y., Mintz E., Wild E.M., Kutschera W. and Boaretto E. D-REAMS: A New Compact AMS for Radiocarbon Measurements at the Weizmann Institute of Science, Rehovot, Israel. *Radiocarbon* 59/3:775–784. https://doi.org/10.1017/RDC.2016.96

Reimer P., Austin W., Bard E., Baylis, A., Blackwell P., Bronk Ramsey C., Butzi, M., Cheng H., Edwards R., Friedrich M., Grootes P., Guilderson T., Hajdas I., Heaton T., Hogg A., Hughen K., Kromer B., Manning S., Muscheler R., Palmer J., Pearson C., van der Plicht J., Reimer R., Richards D., Scott E., Southon J., Turney C., Wacker L., Adolphi F., Büntgen U., Capano M., Fahrni S., Fogtmann-Schulz A., Friedrich R., Köhler P., Kudsk S., Miyake F., Olsen J., Reinig F., Sakamoto M., Sookdeo A. and Talamo S. 2020. The IntCal20 Northern Hemisphere radiocarbon age calibration curve (0–55 cal kBP). *Radiocarbon* 62/4:727–757. https://doi.org/10.1017/RDC.2020.41

Sanjian A. 1969. Anastas Vardapet's List of Armenian Monasteries in Seventh-Century Jerusalem. *Le Muséon* 82/3-4:265–292.

Schick B. von and Bliss F.J. 1894. Discovery of a Beautiful Mosaic Pavement with Armenian Inscription, North of Jerusalem. *PEF Quarterly Statement* 26:257–261.

Séjourné P.-M. 1894. Chronique palestinienne. *Revue Biblique* 3:628.

Sheridan S.G. and Gregoricka L.A. 2015. Monks on the Move: Evaluating Pilgrimage to Byzantine St. Stephen's Monastery Using Strontium Isotopes. *American Journal of Physical Anthropology* 158:581–591 (DOI: 10.1002/ajpa.22827).

Shukron E. and Savariego A. 1993. Jerusalem, the Third Wall (Area C). *Excavations and Surveys in Israel* 13:78–79.

Stone M.E. 1997. Three Observations on Early Armenian Inscriptions from the Holy Land. In J.-P. Mahé and R.W. Thomson eds. *From Byzantium to Iran: Armenian Studies in Honour of Nina Garsoïan*. Atlanta. Pp. 417–424.

Stone M.E. 2002. A Reassessment of the Bird and the Eustathius Mosaics. In M.E. Stone, R. Ervine and N. Stone eds. *Armenians in Jerusalem and the Holy Land*. Louvain. Pp. 204–219.

Stone M.E. and Amit D. 1997. The New Armenian Inscriptions in Jerusalem. *Cathedra* 83:27–30 (Hebrew).

Stone M.E., Amit D., Seligman J. and Zilberbod I. 2011. New Armenian Inscription from a Byzantine Monastery on Mt. Scopus, Jerusalem. *Israel Exploration Journal* 61:230–235.

Stone N. 2019. Birds from Heaven in Heavenly Jerusalem. In N. Stone. *Studies in Armenian Art. Collected papers.* Leiden–Boston. Pp. 236–246.

Sukenik E.L. and Mayer L.A. 1930. *The Third Wall of Jerusalem.* Jerusalem–London.

Talgam R. 2014. *Mosaics of Faith: Floors of Pagans, Jews, Samaritans, Christians, and Muslims in the Holy Land.* Jerusalem–University Park, Pa.

Tchekhanovets Y. 2015. A Stone Bowl with Greek and Armenian Inscriptions: Yet another Old Forgery? *Zeitschrift für Papyrologie und Epigraphik* 196:142–146.

Tchekhanovets, Y. 2018. *The Caucasian Archaeology of the Holy Land: Armenian, Georgian and Albanian Communities between the 4th and 11th Centuries CE.* Leiden–Boston.

Tchekhanovets Y. 2020. Jerusalem, Ha-'Ayin-Het Parking Lot. Hadashot Arkheologiyot–Excavatins and Surveys in Israel 132 (June 21). http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=25729&mag_id=128 (accessed June 16, 2021).

Tzaferis V., Onn A., Feig N. Rapuano, Y. and Wechsler S. 1991. Jerusalem, the Third Wall. *Excavations and Surveys in Israel* 10:130–133.

Tzaferis V., Amit D. and Sarig N. 1996 A Byzantine Painted Tomb North of Damascus Gate, Jerusalem. *'Atiqot* 29:71*–75* (Hebrew; English summary, pp. 112–113).

Tzaferis V., Feig N., Onn A. and Shukron E. 2000. Excavations at the Third Wall, North of the Jerusalem Old City. In H. Geva ed. *Ancient Jerusalem Revealed.* Jerusalem. Pp. 287–292.

Vincent L.-H. and Abel F.-M. 1922. *Jérusalem; Recherches de topographie, d'archéologie et d'histoire* II/III: *Jérusalem nouvelle; La Sainte-Sion et les sanctuaries de second ordre*. Paris.

Zilberbod I. 2011. Jerusalem, Shivtei Yisrael Street. *Ḥadashot Arkheologiyot–Excavations and Surveys in Israel* 123 (November 21). http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1858&mag_id=118 (accessed June 16, 2021).