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Survey and excavations at Solomon's Pools, Palestine: 2018 preliminary report

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ABSTRACT
This article provides an initial archaeological and historical overview of the Lower Pool at the Pools of Solomon south of Bethlehem, Palestine.

KEYWORDS
Solomon's Pools; *Aelia Capitolina*; Jerusalem; Roman aqueducts

Introduction

An archaeological assessment of the Lower Pool of Solomon's Pools south of Bethlehem, Palestine, was carried out intermittently by the authors between December 2017 and December 2018. This preliminary assessment was conducted as part of a larger project to repair, conserve, and develop the site by the Solomon's Pools Preservation and Development Center, funded by the United States Department of State Ambassador Fund for Cultural Preservation, and with the permission of the Palestinian Authority's Ministry of Tourism and Antiquities.[1] The purpose of the initial survey was to assess the state of the Lower Pool (henceforth LP) through visual inspection, test excavation, and three-dimensional photogrammetric modelling in order to determine the course of action for conservation works.

The so-called 'Pools of Solomon' comprise three large, rectangular water reservoirs located ca. 5 km southwest of Bethlehem that are at the heart of an elaborate collection and distribution system that provided water to Jerusalem in various ways for the last ca. 2000 years (Figures 1–3). In the past, the three pools at were fed by four local springs ('Ein Saleh, 'Ein Farujeh, 'Ein 'Atan, 'Ein Burak) and two major aqueducts (Arrub Aqueduct, Wadi El-Biyar Aqueduct) bringing water to the pools from springs and other pools at higher elevations to the south (Figure 2). Two additional aqueducts (the High-Level Aqueduct and the Low-Level Aqueduct) transported water to additional components of the system in and around Jerusalem (Figures 2 and 3).

Archaeological and historical research on the system has focused primarily on the aqueducts, and the Pools have been largely ignored as objects of study in themselves—documented only by general descriptions and imprecise measurements.[2] An archaeological description of the pool has never been made. This can be explained by the fact that the Pools have been filled with water for much their history, obscuring the complex

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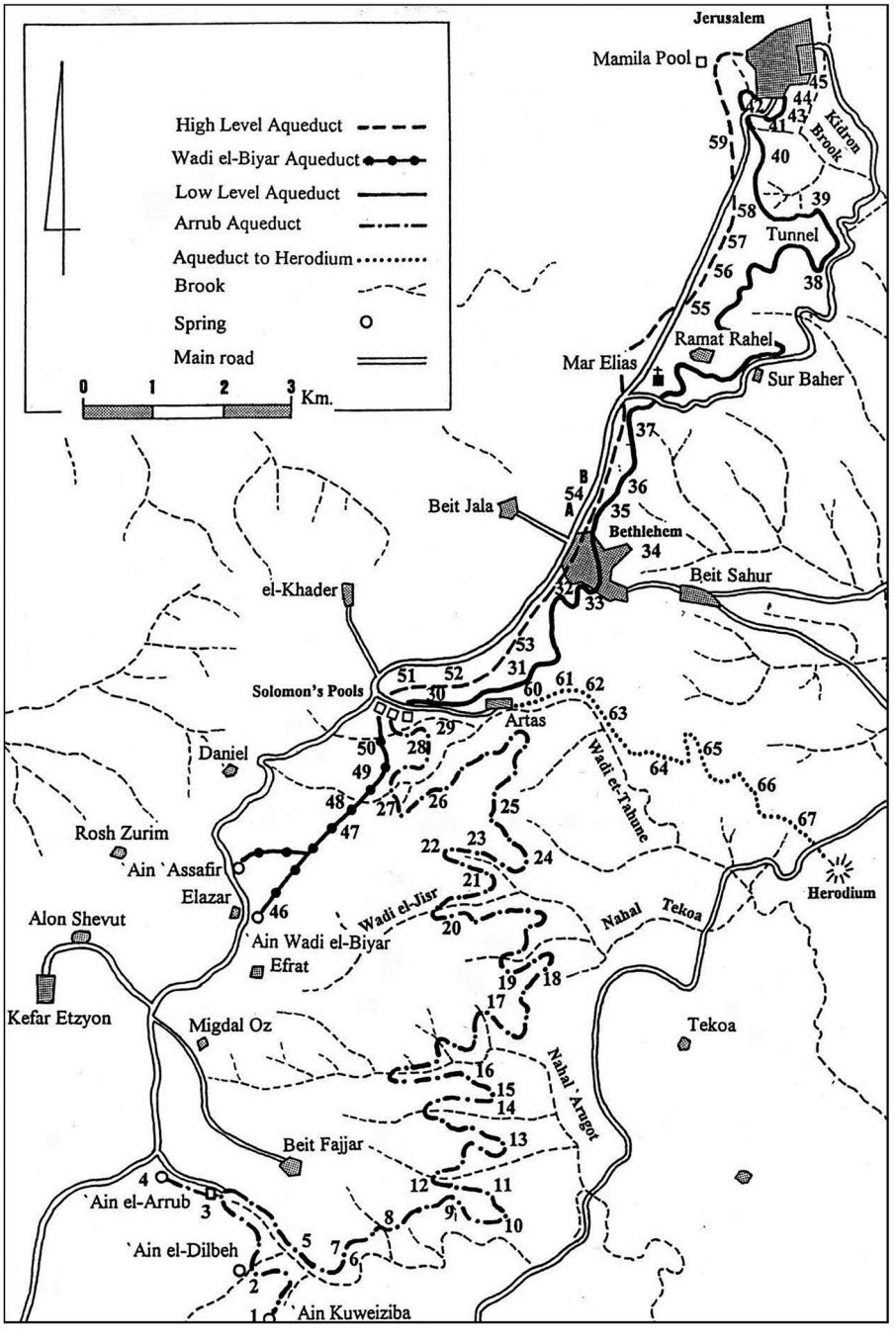

Figure 1. Map of the Aqueduct Systems of Jerusalem (after Amit and Gibson 2014, Fig. 1 and Mazar 2002).

architectural components beneath the surface, and, perhaps, because the Pools appear to be inert entities—passive components in the overall system, holding water while the aqueducts performed the important task of transportation. However, our initial assessment demonstrates that the Pools themselves comprise a complex system, the operation and

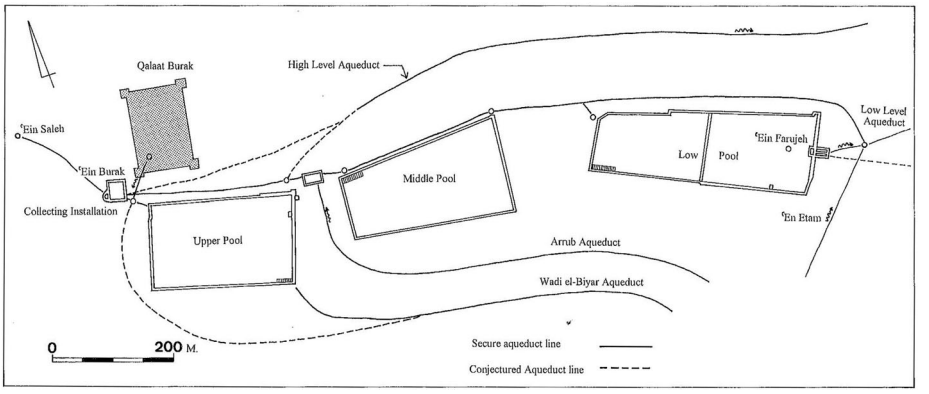

Figure 2. Plan of Solomon's Pools Area (Mazar 2002, 231).

Figure 3. Aerial photo of the three pools facing west.

development of which involved specialists and elaborate infrastructure that was modified and adapted many times throughout the site's history.

During the 2018 assessment, the project carried out the following activities at the LP:

1. LP was drained of most of its water and silt, garbage, and vegetal growth was removed.
2. 3D models of the LP were created from drone-based and DSLR photographs using Agisoft Photoscan according to the 'JVRP Method' (Prins 2016; Adams forthcoming).[3]
3. Orthographic plans and sections of the pools were created from the 3D models and supplied to the engineering and conservation teams (Figure 4).

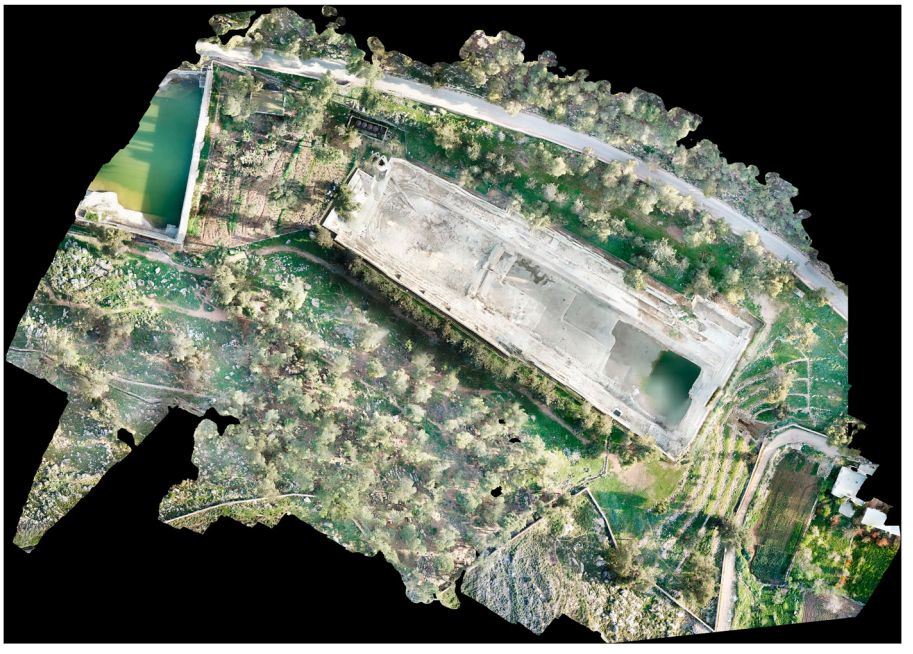

Figure 4. Orthophoto of the Lower Pool. North is up. Data collected 21 March 2018.

4. An on-site visual survey and study of the 3D models documented various components of the pool and identified damaged areas of the pool to be addressed by the conservation team.
5. Small test trenches were excavated at key locations to prepare for engineering works and to verify constructional history of some of the walls of the pool.
6. During conservation works, additional archaeological data was documented.

The preliminary assessment has allowed for a more detailed understanding of the LP than has ever been provided. The purpose of this report is to provide a new description of the LP that will be a framework for ongoing research and archaeological work at the site.

Architectural description of the interior of the lower pool

The LP is the largest of the three pools (179 m × 46 m [West]/61 m [East] × 23 m deep; Figure 4). The capacity of the LP was calculated by Mazar at 113,000 m^3 (Mazar 2002, 231), although the Jerusalem Mandate Period archives record the volume as 90,000 m^3. The discrepancy seems to be due to the fact that Mazar was unaware of the terraced inner topography of the pool (below). Regardless, this would certainly be a maximum figure and is almost certainly higher than the capacity of the original pool; it is clear that the walls of the pool have been raised on at least two occasions.

The LP was re-plastered numerous times over its history, and in some places as many as seven layers of plaster can be seen (more below). Currently much of the pool is coated with a grey concrete plaster laid in square patches with expansion joints between then

Figure 5. General photo of the Lower Pool from on top of the Dam Wall, looking west.

filled with another material with a reddish matrix (Figure 5). This plastering was carried out during the British Mandate Period. In photographs before 1930, a plaster of a different character (without joints) is evident. The latest layer of plaster obscures many of the architectural elements of the pools, however earlier plasters continued to function in many areas and can be documented. Furthermore, degradation of the most recent plaster has resulted in numerous breakages which provide windows into some of the underlying architectural components of the pool.

Additional data concerning the architectural history of the LP was accessible due to the recent collapse of a ca. nine-metre section of the northern wall (Figure 6). The collapse, and the construction and conservation work carried out to repair it, allowed for visual inspection of wall at that location that yielded a number of stratigraphic observations. Buckling of the upper portions of the south wall also provided an opportunity to record aspects of the constructional history of the pool at that location through a test trench abutting the exterior of the wall.[4] These opportunities to investigate the pool (along with other investigations of that dam wall, detailed separately below) have allowed for the establishment of a baseline stratigraphic framework that can be applied to the whole pool.

The pool was created by excavating the limestone bedrock and colluvial material within Wadi el-Hoch, leaving behind walls of bedrock defining the pool on all four sides. The result was an irregularly shaped basin situated within the undulating topography of the wadi. Inside the pool, the native rock was hewn into terraces extending around the perimeter, with steps cut to allow movement between terraces (Figure 7). One terrace, which we refer to as the 'Main Terrace', is the widest and is approximately the same height around the southern, western, and northern walls. The full role of these terraces remains unclear. Certainly they provided convenient access to the deeper parts of the pools when the water level was low, and were used by workers to enter, inspect, and clean the system.

Figure 6. Photo of the collapsed portion of the North Wall of the Lower Pool.

The character of the four sides of the pool vary according to local topography and historical circumstances. On the south side, the bedrock is high and the south wall of the pool is almost completely cut bedrock, with the upper ca. 1.5–2 m built of hewn stone

Figure 7. Photo of the northwest corner of the Lower Pool showing examples of the interior terraces of the pool. The large portion of the South Wall that is part of the British Mandate renovation. Note the sloping channel into the pool at centre.

Figure 8. Orthophoto of the South Wall.

secured by mortar in at least two distinct phases (Figure 8). The interface of the bedrock and the built wall on top of it can be seen at the point where the buckling wall has caused plaster to fall from the seam (Figure 9). At this same level, immediately to the west of the buckling, a bedrock-hewn staircase within the pool reaches its height, apparently put out of commission by the construction of the built wall. The built wall that exists now, therefore, was not a part of the original construction of the pool.

The western portions of the south wall, as well as much of the north wall, are supported by internal buttresses (Figures 8 and 12). Where damaged plaster coating permits visual inspection, these buttresses appear to be built directly against earlier plaster (demonstrating that they are later additions), and mostly at locations where they buttress bedrock rather than an earlier wall. In one place along the northern wall, the underlying bedrock features a major crack showing slippage at precisely the location of the buttresses (Figure 12). The buttresses were apparently intended to secure places where the bedrock was known to be damaged.

The majority of the western wall is covered by a poured concrete revetment with steel pipe inlets (Figure 10). A similar addition to the pool is in the northwest corner, also of poured concrete. These renovations took place in the years between 1923 and 1939, most likely in 1932 as a result of a breach in the wall caused by flash flooding (*Palestine Bulletin* 1932). These two renovations comprise the latest significant interventions in the LP, though smaller additions were made periodically since then (see below).

The north wall and especially the northwest corner of the pool is the most architecturally complex, showing numerous rebuilds and additions (Figures 11 and 12). At various places along the north wall, bedrock can be seen behind broken portions of the plaster,

Figure 9. Orthophoto of the Southern Wall of the Lower Pool, showing collapsed plaster due to the buckling of the wall above. Collapsed plaster reveals bedrock with upper retaining wall. Note bedrock staircase cut off at centre right. The upper two courses of wall are of relatively recent vintage (*ca.* Medieval-modern).

Figure 10. Orthophoto of the West Wall of the Lower Pool.

Figure 11. Photo of northwestern corner of the Lower Pool. Note the traces of two basins (filled with earth) at the top of the sloping channel and the wide staircase.

showing that the bedrock on the northern side of the pool was of lesser quality than that on the south and had a much more varied topography—at places being quite high and at other places being nearly as low as the 'Main Terrace' (Figure 12).

The north wall exhibits at least five different phases at the location of the recent wall collapse, including two renovations in the British Mandate period and one more recently (Figures 13 and 14). Along the wall the native bedrock is at its lowest point, meaning that the built wall on top of the bedrock is one of the tallest artificial walls in the pool. The

Figure 12. Orthophoto of the North Wall of the Lower Pool.

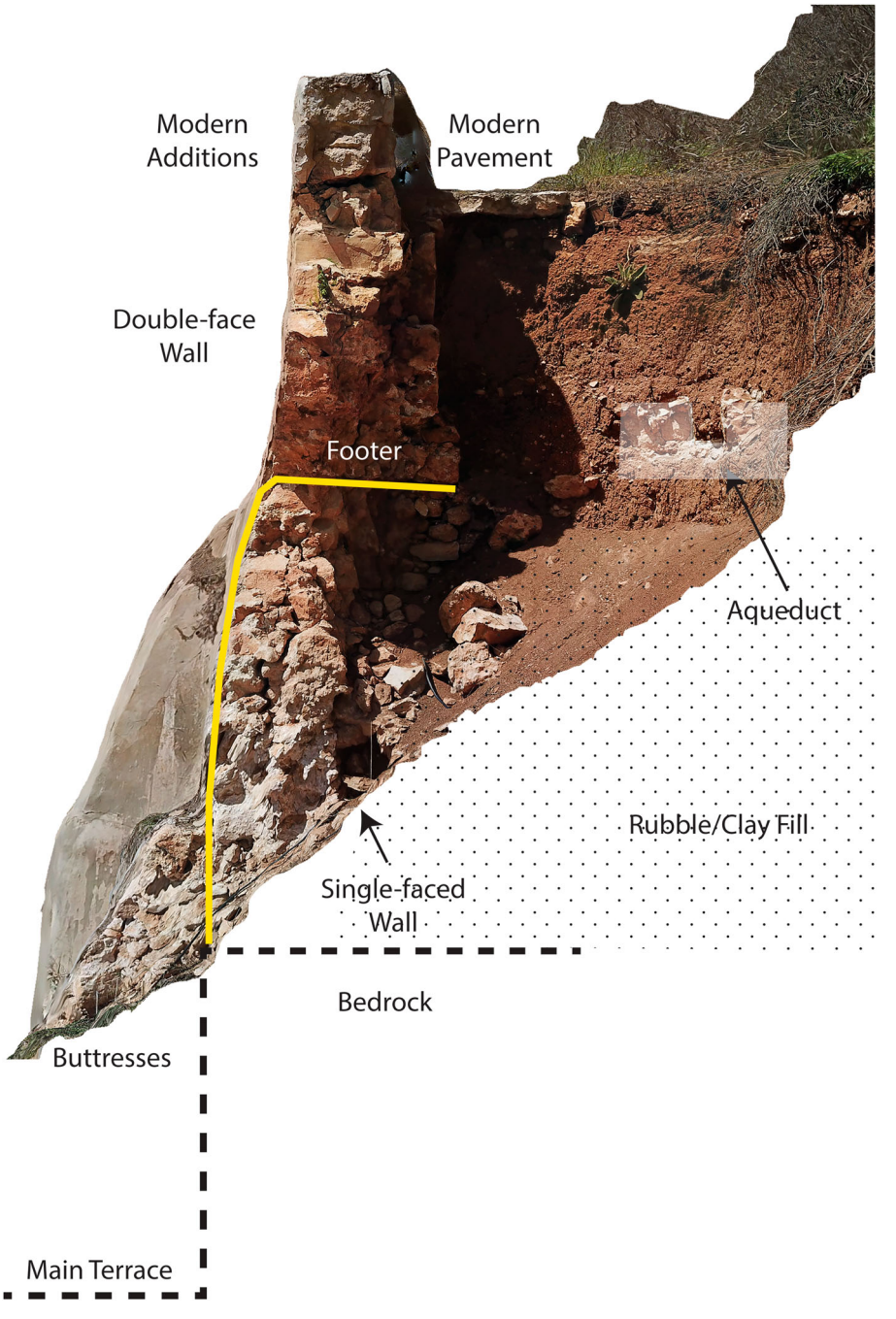

Figure 13. Strata in collapse of northern wall. At bottom, the 'single face wall' is the earliest discernable at this location, due to debris still covering the lowest portions. This single-face wall is of a revetment style, built up against a cut section of earth and meant to support it. The 'double-face wall' was designed as freestanding, and thus earth built up against the outside of it is stratigraphically later.

Figure 14. Photo of break in the North Wall of the Lower Pool after cleaning showing ongoing reconstruction work at the site.

earliest components of the wall were visible but could only be investigated quickly due to safety concerns. The bedrock at this point was cut flat, forming a step—the wall built on an upper step and the next step down in the pool being the 'Main Terrace'. The built wall has a single-face of cut stones, supported from behind by field stones set into a lime and aggregate mortar and interfacing with the sediment behind. It thus serves as a revetment built from the inside of the pool against the sediment north of the pool. Behind this wall there is an earthen matrix consisting of at least one metre of a distinctive artificial fill of a dense rubble and clay conglomeration. Presumably this material was used to fill the gaps in the undulating bedrock, and the revetment wall provided a lining for the fill inside of the pool. The lateral forces of the water within the pool pressed against the revetment wall, but it was the clay fill, and not the wall itself that contained the water at this point. The height of the revetment wall coincides roughly with the height of the bedrock of the southern wall, and thus we suppose that for much of the history of the pool its upper course was the maximum height.

Above the single-faced revetment wall is a later wall with cut blocks and both inner and outer face (Figure 13). The wall was constructed with a wider footer that was probably below grade, but the majority of the wall appears to have been freestanding. The lowest course coincides with the upper level of an aqueduct three metres north of the wall and running parallel to it (Figure 13), and we presume them to be contemporary. The double-face wall with footer was also identified in the southern wall during the test trench excavation.[5]

Based on observations at the broken wall, we also attribute the large interior buttressing of the pool to the period of the double-face wall and the aqueduct. The older revetment wall was covered with a plaster that accumulated a coating of mineral sinter during its

initial phase of use. The large interior buttress adjacent to the broken wall was built up against this plaster and sinter, and the foundation of the double-faced wall is at the level of the top of the buttress. In later periods, the double-faced wall was extended upwards on two or three occasions, and during one of those renovations the aqueduct was covered with ca. two metres of fill.

Just outside the northwest corner of the pools is a large stone-lined tank, 3.5 metres deep that acts as a settling basin for water entering to LP from the Middle Pool to the east (Figures 7 and 11). Whether or not the tank is original to the pool is not yet clear. It was certainly in use during the Mandate Period, and a segment of an Ottoman-era ceramic pipe can be seen entering the tank. There are two outlets in the eastern wall of the tank lead directly to the pools northwestern corner, where a very complex architectural history can be observed (Figures 11 and 12). This portion of the pool appears to have been the main inlet for water during the entire history of the pool, but further work is needed to elucidate the architectural stratigraphy here.

The native bedrock was not quarried out as deeply in the northwestern interior as it was in the remainder of the pool. An elevated platform at this point shows remains of two basins cut from the bedrock that seem to correspond to two inlet passages coming from the exterior tank (Figures 7 and 11). Immediately east of these basins is a wide staircase that descends to the 'Main Terrace' level within the pool. It is difficult to tell if the basins are original or if they have been cut out of this staircase, which may or may not have continued upwards to the west.

South of these basins is the broken remains of an aqueduct which sloped southwest from this point to the bottom of the pool (Figures 7 and 11). The aqueduct appears to be an original feature of the pool. While most of the channel is covered with plaster, an architectural section cut into the plaster showed that the bulk of the feature comprises bedrock with two courses of hewn stones placed on top to form the outer walls of the channel. The channel is built of stone with a lime mortar and plastered in at least two distinct phases. Remains of at least four layers of plaster around the base of the feature indicate repeated plastering, as well. The earliest plaster within the channel and at the base is a reddish colour, tinted by the inclusion of ceramic grog.

It is difficult to tell if the aqueduct led from the basins into the pool, or if the basins cut away the continued ascent of the aqueduct, because the point where the upper part of the aqueduct and the rock-cut basins meet is poorly preserved. If one should equate the two inlet passages from the exterior tank with the two rock-cut basins in the pool below them, then the fact that the two inlet passages are a relatively late addition (considering evidence of numerous rebuildings of the wall at this point) indicates that the basins, too, are later. The evidence available from a visual inspection alone, therefore, suggests that the aqueduct and staircase were the original main access point to the LP for water and system maintenance, and were put out of commission with the construction of the stone-lined tank.

Overall, the observations made during our preliminary work, particularly in observations in the wall stratigraphy of the broken northern wall, provide a general stratigraphic framework for further study of the pools as follows:

1. Initial construction, including the interior terraces, sloping western aqueduct, and adjacent wide staircase to the 'Main Terrace'.

2. The Single-face Wall Phase—the construction of the revetment wall in the north. This may have been built during the initial construction phase.
3. The Double-face Wall Phase—the construction of the double-face wall and aqueduct in the north and south. Extensive buttressing throughout the pool. Tentatively, we add the construction of the western stone-lined basin with two inlet passages and the double settling basins within the pool. This represents a significant renovation to the LP.
4. Minor maintenance, including additional courses added to surrounding walls.
5. British Mandate Period major renovation project.
6. Modern maintenance and other interventions (1948-present).

This scheme will be refined with future work and probably these gross stages will be broken down into finer stratigraphic phases. We now turn to the Dam Wall and Spring House, which has unique architectural features which can also be tied into this basic stratigraphy.

Description of the Dam Wall and Spring House

The dam forming the eastern wall of the pool exhibits evidence of multiple phases which fit into the stratigraphic scheme described above (Figure 15). From the interior of the pool, the built portion of the Dam Wall is wholly obscured by the Mandate Period plastering (Figure 16). However, several metres of the interior base of the wall is visible through breaks in the plaster and show that the lowest 7–8 metres is cut directly from the bedrock which was left in place with several interior terraces. There is a large cube of bedrock, roughly three metres to a side, that was left by the original pool quarriers at the bottom centre of the wall. Today a British Mandate Era pipe passes through this cube and is the primary means of extracting water from the pool eastwards into the Artas Valley.

The built Dam Wall was constructed on top of the bedrock base. Currently there are very few clues about the construction of the Dam Wall itself. In addition to being obscured from the inside of the pool, it is also completely obscured on the outside (i.e. from the east) by modern agricultural terraces built up against it. Further, a stepped buttress was added at some point to the centre of the east side of the Dam Wall (Figure 17). This significant addition to the Dam's architecture was made of large, roughly hewn limestone blocks and is also partially obscured by the modern agricultural terraces. The buttress is at least seven metres wide and its base extends at least 18 metres from the facade of the original Dam Wall. It is built in steps up to the Dam Wall until it reaches at least 12 metres up the side.

On the top of the dam, *ca*. four metres have been added to the original surface of the built Dam Wall between its initial construction and the modern period.[6] There are chambers within the dam, however, and evidence from within damaged parts of the interior chambers suggest that the dam is made with two stone faces with a rubble and clay fill core (perhaps similar to the rubble and clay fill behind the north wall). Considering the roughly 10-metre width of built Dam Wall, it is probable that the core was stabilised by interior vaulting.

At the centre of the eastern buttress is a vaulted passageway that leads to a vaulted chamber within the dam, directly behind (east of) the cubical bedrock block within the

Figure 15. Orthophoto of Dam. North is up.

Figure 16. Orthophoto of the interior face of the Dam Wall, facing east.

Figure 17. Photo of the Dam exterior from the east. The central opening through the stepped buttress providing access to the Dam interior is surrounded on both sides by modern agricultural terracing.

pool, and the British outlet pipe from the pool passes through this chamber (Figure 18). The passage and chamber were already noted by Conrad Schick in the 19th century (Figure 19), and he notes that the point behind the bedrock block did not only provide access to the waters of the pool, but a channel beneath this access point provided access to a spring beneath the pool itself (‘Ain Farujeh).

Approximately 10 metres into the dam one can see the seam between the original Dam Wall and the buttress, as well as evidence that the original Dam Wall became structurally compromised, necessitating the addition of the buttress (Figures 20–22). Serious cracks in the ceiling of the original vaulted chamber are present and the front wall of the vaulted chamber (which was part of the facade of the original Dam Wall) has buckled outward,

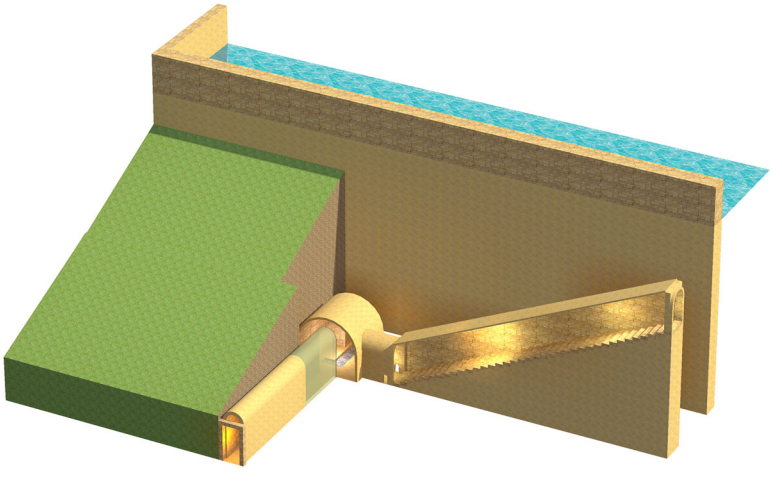

Figure 18. Schematic model of the Dam interior (model by Michael Horton).

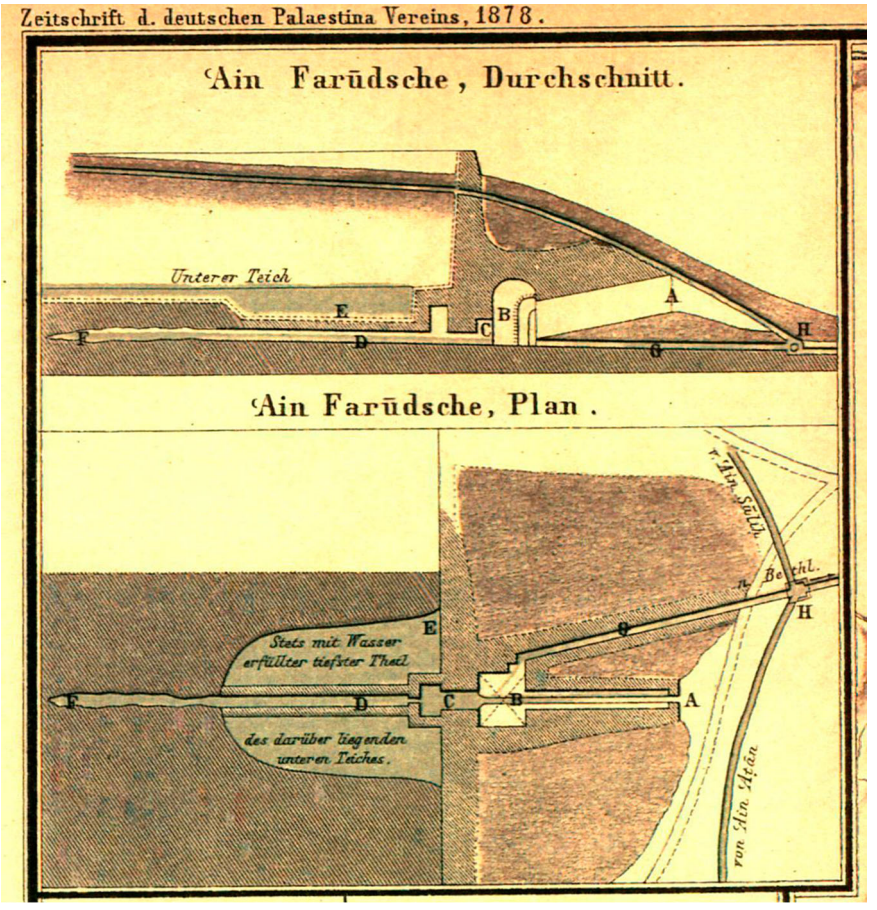

Figure 19. Conrad Schick's plan of the chambers within the Dam (Schick 1878, map at end of volume).

and the buttress has been constructed to prevent further collapse (Figure 24). Within the rectangular vaulted chamber two buttresses were added at the centre of the north and south walls to support the ceiling (Figure 22). Additional support was added to these buttresses in the last two decades.

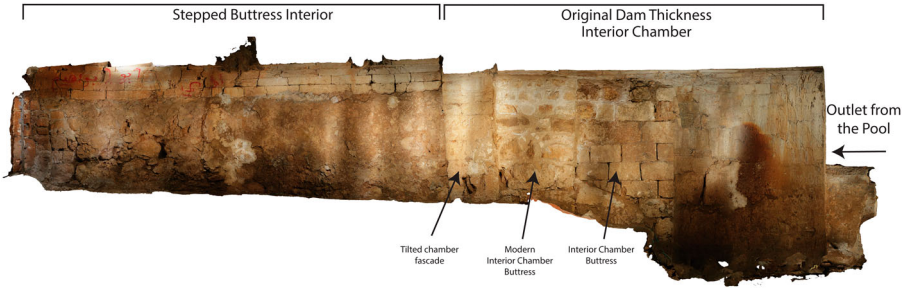

Figure 20. Orthophotographic section through the Dam passageway and interior chamber, facing south.

Figure 21. Photo of cracked ceiling within the interior chamber.

The floor of the central chamber has not yet been cleared of ancient and modern rubble, but fragments of an aqueduct beneath some of the rubble leads water eastward out of the chamber south of the main passageway beneath the southern half of the buttress. In the northern wall of the central chamber is a short passage way which leads approximately two metres to the bottom of a staircase which ascends into the core of the Dam. Before reaching the staircase, two built passageways lead east and west out of this antechamber. The one to the west leads back in the direction of the pool and is partially silted up, but water continues to flow today, apparently from a spring beneath the pool itself which is different than the one that Schick documented.[7] The eastern passage out of the antechamber leads out of the dam north of the central passageway (the Mandate Period pipe passes through here) and continues to deliver overflowed water into the Artas valley.

Figure 22. Photo of the first buttress against the south wall of the original chamber.

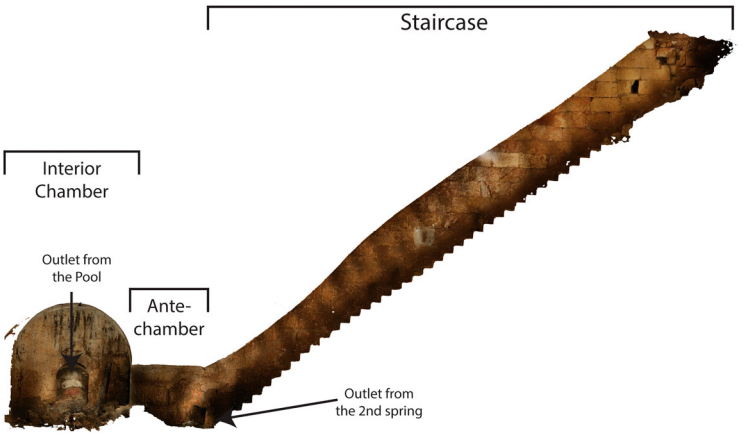

Figure 23. Orthophotographic section through the Dam interior chamber and staircase, facing west.

According to Schick's plan, he saw the antechamber and the eastern passageway, but in his day, the western passage to the second spring and the staircase were blocked. At some point in the last 120 years (and most likely in the last 20 years) someone broke through the blockage, evidence of this blockage can still be seen by fragments of sinter still *in situ*.

The staircase is an impressive monumental feature, leading approximately 15 metres up into the dam (Figure 18 and Figure 23). It is built entirely of large ashlar blocks with tight well-executed seams between them leaving no room for mortar (Figures 24 and 25). Behind a few breakages in these ashlars, one can observe the rubble and clay core described above. Looking from the bottom up the staircase, one can see that the entire structure has buckled towards the east—the same direction of the breakages seen at original face of the dam within the entrance passageway (Figure 23; cf. Figure 20). The staircase was blocked at its top with a field stone vault at some point, presumably at the same time that the bottom was blocked. Future work at the site will include excavation from the top of the

Figure 24. Photo of the ceiling blocks within the Dam staircase.

Figure 25. Photo of the wall blocks within the Dam staircase.

dam down to this vault in order to determine the date for the closing of this staircase and to clarify to what the staircase lead.[8]

The architecture of the central chamber, antechamber, and staircase is all uniform and integrated, demonstrating that it was all built as one plan. The two passages off the antechamber also appear to be part of the main design, but the accumulation of sinter and silt make confirmation of this difficult at the time of this report.

Overall, the following architectural history can be observed in the Dam and its internal chambers.

1. Initial construction, including quarrying of the interior of the pool, shaping of the bedrock base of the Dam Wall (and the cubical outlet feature), the built Dam Wall, central chamber, antechamber, and the staircase (and to whatever the staircase lead at the top of the dam). This phase seems to have ended with significant damage to the Dam structure.
2. Major renovations to the complex, including the blocking of the staircase (top and bottom), buttressing within the central chamber, and the construction of the central stepped buttress east of the dam.
3. British Mandate Period major renovation project.
4. Modern maintenance and other interventions, including the addition of agricultural terraces on the east face of the Dam Wall (1948-present).

Architectural summary on the pools based on new work

Excavations and with visual inspections of the LP and the chambers within the Dam suggest an overall stratigraphic framework which forms the basis of future work. Three major periods of construction have been identified with several sub-phases.

The initial construction of the pool includes the hewing of the bedrock into the shape of the pool seen today, including the shaping of the terraces and the stairways between them. On the south side of the pool, bedrock appears to have formed the main wall of the pool, while on the south, the topography of the bedrock required some wall construction to

contain the water. Water entered the pool in the west via the sloping aqueduct. The water was held in the pool by the bedrock Dam Wall and Built Dam Wall, and water was let out of the pool through the cubic bedrock feature. The Built Dam Wall was a large structure, standing roughly 15 m high and comprised of exterior retaining walls with a rubble and clay core, perhaps further supported by interior arches. Within the Dam was a central vaulted chamber that managed the flow of water from the Pool as well as from two artificial passages which tapped the aquifer beneath the pool. The chamber was accessed by a doorway through the eastern facade of the Dam Wall and by a staircase which descended from the top of the Dam. The architecture of the internal structures within the Dam Wall together with a preliminary typological assessment of the earliest hydraulic plasters within the pool suggests a date within the Roman Period for the initial construction of the LP.[9]

Signiant damage to the Dam Wall can be seen within the interior structures, including the lateral movement of the staircase, the exterior wall at the entrance to the central chamber, and the cracking within the ceiling of the chamber. It is not clear of this damage happened over time or was the result of a single episode such as an earthquake. It is also unclear if the damage began a period of abandonment of the pool or if the pool was no longer in use when the damage occurred.

The second major phase of the LP is evident primarily in the repair and reinforcement of the pool. This includes the extensive buttressing within the pool and the construction of the wall surrounding the pools (along with the exterior aqueduct parallel to the north wall). The Dam Wall was reinforced with the large stepped buttress on the east side and the central chamber was reinforced with the interior buttresses. The staircase was blocked at both the bottom and the top. It is not yet clear if all of these repairs should be attributed to one renovation project; however, there is a general similarity in architectural features in each of these reinforcements, and such a possibility fits well the observable relative chronology of interventions at the pool. As for the date of this major renovation, the most logical conclusion at this point is that it is a Mamluk-era project. The Swiss traveller Felix Fabri, who visited Palestine between 1480 and 1484, reports seeing beside the Middle Pool 'pavillions and tents, wherein dwelt the architects, clerks of the works, overseers, and masters, who there arranged how the watercourses should be dug through the mountains' (Stewart 1893, 202), which is the project known to have taken place according to contemporary texts under the Sultan Qaytbey in 1483 CE (Salama and Zilberman 1986, 93). The reference to this major water project was originally interpreted as the *original* construction of the Lower Pool, but considering that it was certainly built in the Roman Period, the references should probably be understood to refer to the extensive renovation of the LP described above. Another refurbishment project was carried out in nearly a century later by the Ottoman Sultan Suleiman (Salama and Zilberman 1986).

By the later Ottoman Period, the pools had once again gone out of use, and in 1900, ideas were floated to rehabilitate the aqueduct from Solomon's Pools to Jerusalem with modern piping (*The Courier-Journal* 1901; *Democrat and Chronicle* 1901). However, the Pools were only in use to supply water to Jerusalem, in any significant way, for a span of twelve years: from June 1923 to December 1935, after the authorities of the British Mandate carried out extensive modern renovations, including the installation of a pump and filter house at the northwest corner, as well as a complete replastering of the pool. A thunderstorm in November of 1932 caused a flash flood in the hills surrounding the Pools, and the quantity of water rushing down the wadi caused the LP engine and

filter house to be flooded, the path from Hebron road to the pools to be washed away, and 'two breaches in the wall in the lower Pool' (*Palestine Bulletin 1932*). While the location of these breaches is not specified in documentation at our disposal, we interpret them to coincide with the poured concrete renovations on the north and west walls of the LP, which suggests that in the years between 1923 and 1932, the entire pool was covered with the currently visible concrete sealant. By 1938 water from the Pools was no longer used for drinking (Palestine Post 1939), and the site became a popular bathing destination during the summer of 1940 (*Palestine Post 1940*).

Notes

1. https://jru.usconsulate.gov/u-s-consul-general-launches-conservation-project-solomons-pools-bethlehem/
2. For detailed overview of the historical sources relating to the pools and a summary of surveys and excavations see Mazar 2002 and Amit and Gibson 2014.
3. A sample of these models is publicly available at https://sketchfab.com/models/bead909e08dc4f458052c0a7923b07d1.
4. The test trenches were excavated under the supervision of Max Peers with the assistance of four students from Al-Quds University, Mirvat Ikirmawi, Dia' Abusada, Demiana Rishmawi and Mamdouh Ameirah, along with several workmen from the Solomon's Pools Development Company.
5. The double-face wall with adjacent aqueduct is now known also from the Dam Wall, but this discovery was made too late to be included in detail in this preliminary report.
6. This information comes from new excavation results that are ongoing and could not be included in this report in detail, but will appear in the next publication.
7. Additional evidence for a second spring beneath the pool was uncovered in early 2019 and will be presented in a future report.
8. At the time of publication, this excavation is underway and results will be presented in the next report.
9. Ongoing excavations at the top of the Dam Wall support this dating, and suggest a more precise dating to the 2nd century CE. Details will be provided in the next report.

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