

Digital Reconstruction of the Lower Eastern Town Palace of Tell Leilan in Levels 4, 3, 2

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Tell Leilan, located in the center of the Jezireh Plains in Northern Syria, was originally the city of Shubat-Enlil, the political and economic center of Upper Mesopotamia during the 26th century.¹ The city was previously the ruins of a city named Sehna, until it was renamed to Shubat-Enlil (“Dwelling of Enlil”) and was developed under the rule of Shamshi-Adad (1836 - 1776 BC) during the Middle Bronze Age as the capital of the Old Babylonian empire. Shubat-Enlil was the political, economic, and military center of Mesopotamia for decades,² until the death of Shamshi-Adad. The subsequent gradual decline of the Old Babylonian kingdom under the rule of his sons left the city vulnerable to external invasions. Due to the richness of its agricultural landscape,³ and the riches of the city itself, neighbouring powers were eager to capture and loot the palace of Shamshi-Adad.⁴ It was during this period that Turum-natki, king of Apum, successfully captured the city after repeated attempts.⁵ After 100 years of Akkadian imperial rule, the site was then occupied by Turum-natki and his successors.

The building that was occupied throughout all these periods was the Lower Eastern Town Palace, where Turum-natki, his successors, and servants maintained archival records of business letters, political treaties, and economic records in this building. The tablets found at the palace were able to provide unique insights into the political struggles and conflicts during the period from the waning power of the successors of Shami-Adad, to the eventual destruction of the city at the hands of Samsu-iluma, son of Hammurabi, in 1728 BCE.⁶ This building will be the subject of reconstruction.

Due to the changes in occupants at the site, the building has undergone several modifications. Ristvet and Weiss (2011), who provided a detailed description in the introduction of *The Royal Archives of Tell Leilan*, have categorized the occupation periods into four total levels. Level 4, the oldest level, was the initial level constructed by Shamshi-Adad and used in his reign. Level 3 was still in use during the later period of Shamshi-Adad’s reign and the earlier occupation of Turum-natki, while level 2 was constructed after the reign of Himdiya of Andarig, one of the later successors of Turum-natki, and in use until the destruction of the city.⁷

The goal of this project is to provide a reconstruction of the Lower Eastern Palace. Only levels 4, 3, 2 will be modelled, as these periods provide more meaningful historical context into the changes of power at the site. Since a lot of details have been described in the excavation records, this model aims to provide a faithful reconstruction of the palace based on the information provided. Attempts were made to include specified furniture and artifacts, but the lack of textual and visual references made this task difficult. The decision was made to omit these furniture and artifacts, and instead focus on fixture changes in different periods.

¹ Harvey Weiss, "Tell Leilan (Hassake)." In *A History of Syria in One Hundred Sites*, ed. Youssef Kanjou and Akira Tsuneki (Oxford: Archaeopress Archaeology), 115

² Lauren Ristvet and Harvey Weiss, “Archaeological Introduction.” In *The Royal Archives from Tell Leilan: Old Babylonian Letters and Treaties from the Lower Town Palace East*, Jesper Eidem (Leiden: Nederlands Instituut voor het Nabije Oosten), XVII

³ Weiss, “Tell Leilan (Hassake)”, 115

⁴ Ristvet and Weiss, “Archaeological Introduction”, XVII

⁵ Harvey Weiss, “Rediscovering: Tell Leilan on the Habur Plains of Syria”, *The Biblical Archaeologist*, vol. 48, no. 1 (March 1985), 28

⁶ Ristvet and Weiss, “Archaeological Introduction”, XVII

⁷ Ibid, XXII – XXVIII

Before the creation of the model, notes were compiled by room and period based on the information provided by Ristvet and Weiss (2011). (See Appendix for table.) The digital version of the site plan was retrieved from the website created by the same excavation team.⁸ Since there will be more than one building level and layers involved in the model, it was decided that implementing additional toggle options was the best way to present the model with the most clarity. The toggle menu will provide the user with options to change the visibility of each level, as well as the option to toggle the visibility of walls and flooring. This was out of consideration for sections of the building with layers of walls and flooring built on top of previous layers. Other modelling applications such as Blender, while having the ability to pan and observe the model, do not have the ability to view multiple layers, as only the outermost object could be seen. For this reason, game engines, namely Unity was considered to support both 3D modelling (through the ProBuilder package), and customized UI object interaction supports. An additional toggle button was implemented to change the visibility of imagined reconstruction sections.

The site plan was imported into Unity. To properly line up the dimensions, a tester wall with known dimensions was constructed according to the shape of the map. Then, the measurements of the wall were cross checked with the provided dimensions. The site plan, alongside the constructed wall were both iteratively adjusted in size, until the measurements matched up with the dimension. The next steps in the reconstruction mostly followed the site plan – it was assumed that the relative sizes indicated on the plan were mostly accurate (this assumption was made after constructing and cross-checking the dimensions of all level 4 walls).

Level 4 was the initial level of the palace, constructed during the period of Shamshi-Adad's reign, with evidence suggesting strong connections to Mari and Shubat-Enlil at the time.⁹ The reconstruction process of level 4 was relatively simple, as only rooms 9, 10, 11 and courtyard 4 were present in the excavated area. The walls were made of mudbricks of unspecified dimensions. There are two subperiods during this time, where period 4b demolished the wall between rooms 9 and 10 and added new flooring. The model for this period reflected the state of the building at period 4b. Since no descriptions were provided for the characteristics of the walls and flooring, level 4 walls are indicated with a brown colour (representing mudbricks), and the flooring was represented by the same flooring as later periods. Though unexcavated, the wall of room 11 was able to be reconstructed since all three rooms were of similar size.¹⁰ One challenge for construction during this period was determining the height of the walls, as no descriptions were provided. Thus, the wall height was approximated to be 4 meters tall, using the Palace of Mari in the same time period as reference, using the dimensions of the restored fresco painting in the audience chamber in the palace of Mari.¹¹

Level 3 was the period with the most expansions in the palace. There were no significant issues encountered during the reconstruction process. The rooms were constructed based on the floorplan and descriptions. Floorings were laid in rooms 21 to 25, which was “charcoal and layers of ash”, and room 22 had “red plaster floor”. These were visually represented with black (as layers of ash), and red. The walls of this period were described as “gray or red rectangular mud bricks”, with specified dimensions for

⁸ “Tell Leilan Project – Samsi-Adad Palace,” Harvey Weiss, accessed March 20, 2024, <https://leilan.yale.edu/about-project/excavations/samsi-adad-palace>

⁹ Ristvet and Weiss, “Archaeological Introduction”, XXII

¹⁰ Ibid, XXII

¹¹ Marie-Henriette Gates, “The Palace of Zimri-Lim at Mari,” *The Biblical Archaeologist*, vol. 47, no. 2 (June 1984), 75

vertical and horizontal mortar. Assets were created to reflect the specified dimensions with grid paper to ensure that the relative proportion was correct. Then, the coloured assets were imported as custom materials, then rescaled and applied on all level 3 walls. The specific scaling was adjusted by calculating the number of bricks of specified dimensions that could fit into a 4 meters tall wall. Though the usage of custom assets ensured the correct representation of two-dimensional sizes, the sizing of bricks at the side of walls was not made clear, which will be included in the discussion of the limitations of the model. Courtyard 20, which was constructed during this period, had square baked paved bricks laid throughout the area. Assets were created and imported with the same methods as walls of this period. A curve cutout was present on the north wall of the courtyard and was stated to be opposite the largest doorway of the palace. Additionally, it was said that there exists a door opposite of the doorway at from courtyard 20 to room 16, thus, additional imagined reconstruction was added to match these descriptions. New walls with openings for the described doorways were added to match these descriptions, with the symmetrical properties of the room in mind. During this time, previous entrances of rooms 9, 10, 11 were sealed off, and new entrances were made on the north side of the room. An imagined reconstruction of the doorways was added, using the wall materials in level 4.¹²

Level 2 was the last occupation period before the destruction of the Shubat-Enlil. During this period, there were no significant expansions. However, it was stated that “level 3 walls were leveled above occupational surfaces to allow for level 2 wall constructions”, and that level 2 walls were usually 20-30 centimeters higher than level 3. Thus, it was assumed that walls of all previous levels (since level 4 walls were mostly kept in use during level 3) had an additional 30 centimeters wall segment added at the top. As well, there were additional walls inserted between rooms 2, 3, and rooms 13, 14. Entrance to room 25 was blocked, and entrance to room 20 was narrowed by a new wall. With a similar process as the level 3 walls, material for level 2 walls was created using the description that the bricks were soft, crumbly, light gray bricks, irregularly laid, with thin mortar lines. In rooms 13, 14, 17, 18, the level 2 flooring was laid upon around 20 to 60 centimeters of brick fragments, which was reflected in the reconstruction (level 3 bricks were used to indicate the fragments).¹³

In conclusion, this reconstruction was able to provide a detailed reconstruction of excavated sections of the Lower Eastern Palace of Tell Leilan from the initial occupation of Shamshi-Adad to the destruction of Shubat-Enlil. There are some possible improvements that could be done to improve the quality and accuracy of the model. For instance, models of seals and tablets could be added, since they acted as key indicators of the time periods. As mentioned in previous sections, the details of interior fixtures such as brick thickness of walls could be added for improved reconstruction accuracy. As well, furniture could be added to indicate the functionalities of the room. With further consultations with excavated buildings from similar time periods in nearby sites, a reimagined exterior could be pieced together to provide a better picture of the aesthetics and architectural styles of the palace during the different periods of occupation.

¹² Ristvet and Weiss, “Archaeological Introduction”, XXII - XXVI

¹³ Ibid, XXVII - XXX

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Appendix:

Compiled Notes on the Dimensions of Rooms of Lower Eastern Town Palace across Occupational Periods 4, 3, 2, according to Ristvet and Weiss (2011)

Room	Level 4	Level 3	Level 2	Additional Notes
9	Each room around 2.75m wide Walls of regularly laid mudbrick	Entrances blocked by 13,14,15 New entrances are to the north (unexcavated)		
10	Doorways: 1.25m wide Cylinder seals of servants in rooms 9, 10			
11				
4	Small brick pavement north side of room 4 (courtyard)	Wall between 4, 8: 24.5m Room dim: > 12 x 18.25m Door to 1 (doorway coated in mudbrick sill)		
1		Floor destroyed 3.75 x 9.5		
2			Wall built between 2,3 1.75 x 3.5m	

3			1.75 x 7.75	
5		No doorways	Fell out of use (doorway blocked in this period)	
6		6 x 3.75 m (probs. reception) Eastern part of south wall to rm 20		
20		<p>Baked brick paved courtyard</p> <ul style="list-style-type: none"> Bricks: 42x42cm, 6-7cm thick <p>14m long, at least 12.5m wide</p> <p>Regular doors to 2,16</p> <p>Door opposite to 16 is largest doorway of entire palace (2m wide, center of southern wall)</p> <p>Curve cutout opposite of largest door, ends of curve have postholes (probably some kind of symbolic significance)</p>		
8		<p>3.75 x 3.75 (Kitchen or bath)</p> <p>Entered from room 7 (unroofed area)</p>		

12			level 2 flooring laid upon 20 - 60 cm of brick fragments on top of level 3 floors	Probably food prep rooms Flooring: then, poorly preserved layers of plaster Lvl 2 Walls are 3 bricks wide
13		2.5 x 6 m, regular door to room 18	Wall inserted 2.5 x 3.25 m	
14			2.5 x 1.75m level 2 flooring laid upon 20 - 60 cm of brick fragments on top of level 3 floors	
15		Not connected to 19 Doorway unexcavated Cylinder seal of servant of Shamshi-Adad	Level 3 floor only	
16				
17		4.5 x 3 m, 1m wide doorway to room 12	level 2 flooring laid upon 20 - 60 cm of brick fragments on top of level 3 floors	
18		4.5 x 1.75 m, regular door to 19	level 2 flooring laid upon 20 - 60 cm of brick fragments on top of level 3 floors	

19		(4.5 x 2.25 m Level 3 was not retrieved, but “likely did not change from level 2) Doorway in southeast corner to unexcavated part		
21		Doorway in south room of 22 connects to 25 Floor: covered with charcoal and layer of ash		
22		Each room: 2 x 2.75 m 23, 24 lvl 3 not recovered 22: red plaster floor	Room 22 had majority of the tablets Large storage jar of mud brick blocked 22-25	
23			Doorway between 22, 23 became thinner (50 cm)	
24				
25			Large storage jar of mud brick blocked 22-25	