



SCIREA Journal of Sociology

<http://www.scirea.org/journal/Sociology>

August 24, 2022

Volume 6, Issue 4, August 2022

<https://doi.org/10.54647/sociology84863>

Moses' Tabernacle - Biblical Text vs Exegetic Tradition

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Abstract

No less than twelve chapters of Exodus and Numbers are dedicated to the mobile sanctuary built by the Jews on Moses' instructions during their sojourn at the feet of Mount Horeb, making full use of their technical skills and the materials they brought from Egypt to this purpose. The biblical description is accurate and extremely detailed, down to every single element, at the point that, following its instructions, the Tabernacle can be reconstructed with precision and a high degree of reliability, as it is shown in the present work where the single elements are assembled according to obliged technical solutions in a step by step process. The result is up to the expectations for people who wanted to create a grandiose mobile-temple where to host their God: a large tent of 50 by 100 cubits with a same-size courtyard in front. Although strictly adherent to the letter of the biblical text, this model disagrees in a remarkable way with traditional exegetic reconstructions, which represent the Mishkan as a wooden cubicle, wrapped up by several drapes, surrounded by a high fence. In all evidence the traditional models are inspired to a conception initiated by Josephus Flavius, who in his book "Jewish Antiquities" reconstructs the Tabernacle heavily forcing the meaning of the biblical text to obtain a model in scale 1 to 2 of Jerusalem's Temple. The two conceptions inevitably motivate different conclusions for what concerns the reliability and the historical significance of Exodus' and Numbers' accounts. While the first demonstrates that the

narrative is perfectly coherent and historically reliable, the second encourages a symbolic interpretation of it.

Keywords: mishkan, mobile temple, text interpretation, Bible's reliability, Josephus Flavius

1. Introduction

As a member of Prof. Emmanuel Anati Research Centre ¹ on 1989 I joined the team that assisted him on his archaeological expeditions in Israel. [1] [2] Before doing that I spent several years studying the Bible to have an idea of the events that took place during the exodus and of the places where they happened. From the beginning Exodus and Numbers looked to me reliable accounts, reporting the events faithfully as they were lived and understood by people who witnessed them.

I was particularly impressed by the quantity and detail of information given by the account on an extraordinary manufacture ordered by Moses when the Jews were at the feet of the holy mountain:²

“This is the thing which the LORD commanded, saying: take ye from among you an offering unto the LORD ... gold, and silver, and brass, and blue, and purple, and scarlet, and fine linen, and goats' hair, and rams' skins dyed red, and badgers' skins, and shittim wood ... and every wise hearted among you shall come and make all that the LORD hath commanded: the tabernacle, his tent, and his covering, his taches, and his boards, his bars, his pillars, and his sockets. (Exodus 35, 4-11) [3] [4] [5]

This in the beginning of one of the most accurate and detailed accounts of the book of Exodus, dedicated to the construction of that handicraft that the Hebrew text names as "miqdas", that is Saint or Sanctuary, and "mishkan", term that is variously translated as tabernacle, tent of the assembly, sanctuary, dwelling in the desert. Different terms to indicate what was a proper mobile temple.

¹ CCSP (Centro Camuno di Studi Preistorici) Italy. Anati has an archaeological concession in Israel at Har Karkom, which he claims to be the real Moses' Sinai.

² All the quotations from the Bible in this article are from the King James version [2], but the meaning of some words and verses is compared with versions [3] and [4].

The Jews worked on this project for several months, making full use of all their technical skills and all the precious materials they brought from Egypt to this purpose, to create something grandiose, worthy of the God that had honoured them with his benevolence. Finally, the “first day of the first month of the second year” (Ex. 40, 17) Moses erected and consecrated the mishkan.

This temple played an important role in Israel's history. Once erected, it became an effective instrument of unification, around which the entire life of the Jewish people revolved. Thanks to it, they acquired the conscience of their own identity and found the strength and the determination to conquer the Promised Land.

The exceptional importance of that temple is attested by the space that the Pentateuch gives to its description: 12 chapters in Exodus, plus several in Numbers and Leviticus.

Exodus text describes every single piece of the Mishkan, down to a single peg, reporting the precise measures, the materials they were made of, their decorations and how they were utilised.

As an engineer I could not resist the impulse of reconstructing that manufact. Text in hand I made every piece exactly as it was described, in scale 1cm = 1 cubit, and then assembled them like the tesserae of a puzzle, following the instructions of the account. ⁶

There is little space for arbitrary choices, the outline shown on fig. 1 is obliged.

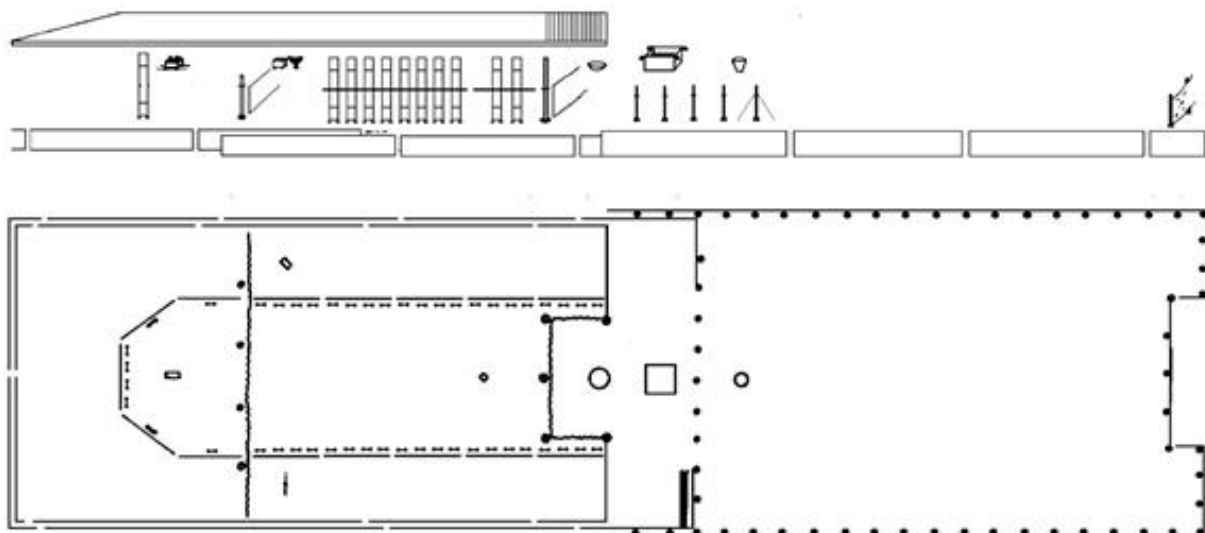


Figure 1. Plan of the Mishkan showing every single piece described in Exodus' account, assembled according to its instructions (original drawing published by the author on 1988, see [7], p. 433)

When I started to compare that result with the traditional reconstructions, however, I found no

match. [8] [9] [10] There are innumerable representations, descriptions, and mock-ups of the Mishkan all inspired to a same model: a wooden cubicle, wrapped up with several drapes, surrounded by a high fence. Different interpretation of the same data offered by the biblical text or gross misrepresentation of them?

In the following paragraphs. the two conceptions are compared, and conclusion are made about the reliability and the historical credibility of the biblical account induced by each of them.

2. Reconstruction Based on Data Offered by the Text

2.1. The Walls of the Tabernacle

2.1.1. Plan of the walls

Exodus' description starts with the specification of the walls, that verses Ex. 26, 1, 6; 36, 8 identify with the tabernacle itself. They were made by two layers: an inner curtain of fine linen, embroidered with figures of cherubs in gorgeous colours, and an outside curtain of goats' hair.

This reminds the way the nomads in that part of the world make their tents [11]: they surround the living space with curtains of linen, often richly decorated, over which they put a curtain made with goat's wool. This curtain fulfils an essential role in the desert; when it is dried its weft is large, leaving the air circulate freely and thus maintaining the inside fresh and ventilated; with humidity and rain it swells, becoming waterproof, thus perfectly isolating the inside. These walls are not fixed to posts but hanged with pins to the external edge of the cover, all around the tent. From Exodus description it appears that the tabernacle was made with the same technique.

2.1.2. The Inner Wall

The precise configuration of the inner wall is reported in Exodus 26, 1-6:

1 Thou shalt make the tabernacle with ten curtains of fine twined linen, and blue, and purple, and scarlet: with cherubims of cunning work shalt thou make them.

2 The length of one curtain shall be eight and twenty cubits, and the breadth of one curtain four cubits: and every one of the curtains shall have one measure.

3 The five curtains shall be coupled together one to another; and other five curtains shall be

coupled one to another.

4 And thou shalt make loops of blue upon the edge of the one curtain from the selvedge in the coupling; and likewise, shalt thou make in the uttermost edge of another curtain, in the coupling of the second.

5 Fifty loops shalt thou make in the one curtain, and fifty loops shalt thou make in the edge of the curtain that is in the coupling of the second; that the loops may take hold one of another.

6 And thou shalt make fifty taches of gold and couple the curtains together with the taches: and it shall be one tabernacle.

The inner wall, then, was made up by 10 sheets of linen, measuring 28 x 4 cubits each. The fact that they were embroidered with brightly coloured images is a compulsory indication that they had to decorate the inner side of the tabernacle, all around it.

On the basis of this description there is no alternative: they were joined together in five, forming two long sheets, each of 140 cubits, that were linked together at the back of the Tabernacle by 50 hooks, so as to form a single curtain, the ends of which were fixed to the lateral pillars at the entrance of the tabernacle.



Figure 2. *Disposition of the ten curtains of fine twined linen, measuring 28 x 4 cubits each.*

The entrance was 20 cubits wide, therefore the entire periphery of the tabernacle was 300 cubits; it was then a rectangle of 50 x 100 cubits.

The curtain was fastened to the two pillars of the entrance, but it did not have any other rigid support: it was hanged to the edge of the cover, which dropped on both sides for the length of 1 cubit (Ex. 26, 13). The height of the tabernacle at the sides was therefore of 5 cubits.

2.1.3. The Outside Wall

The curtains of linen were covered by sheets of goats' hair, described in Exodus 26, 7-11:

7 And thou shalt make curtains of goats' hair to be a covering upon the tabernacle: eleven curtains shalt thou make

8 The length of one curtain shall be thirty cubits, and the breadth of one curtain four cubits: and the eleven curtains shall be all of one measure.

9 And thou shalt couple five curtains by themselves, and six curtains by themselves, and shalt double the sixth curtain in the forefront of the tabernacle.

10 And thou shalt make fifty loops on the edge of the one curtain that is outmost in the coupling, and fifty loops in the edge of the curtain which coupleth the second.

11 And thou shalt make fifty taches of brass, and put the taches into the loops, and couple the tent together, that it may be one.

The outside wall, then, was made by eleven sheets of goat's hair of 30 x 4 cubits each. They were joined by five and six, to form two pieces of 150 and 180 cubits respectively, which also were joined at the back of the Tabernacle by 50 hooks, to form a single curtain of 330 cubits.

It surrounded the Tabernacle and reached beyond it by 15 cubits (Ex. 26, 14-15), being anchored to the first three posts of the courtyard by each side.



Figure 3. Disposition of the eleven curtains of goats' hair, measuring 30 x 4 cubits each.

The remaining 50 cubits of the curtain were put across, thus circumscribing a courtyard of 15 x 50 cubits, just in front of the Tabernacle. However, the eleventh curtain was folded to the side of the entrance to this courtyard (Ex. 26. 9), to let a passage of 30 cubits at the centre of it, that could be closed by spreading out that curtain.

The outside curtain was hanged to the edge of the cover like the linen curtain, a part the final 80 cubits which were secured to the posts of the inner court.

2.2. The Veil and the Curtain at the Entrance to the Tabernacle

The Veil is described in Exodus 26, 31-3. It was a curtain of embroidered linen, that separated

the most holy place from the holy place. It was hanged to four posts overlaid with gold. Its purpose was to preclude the view and the access to the most holy.

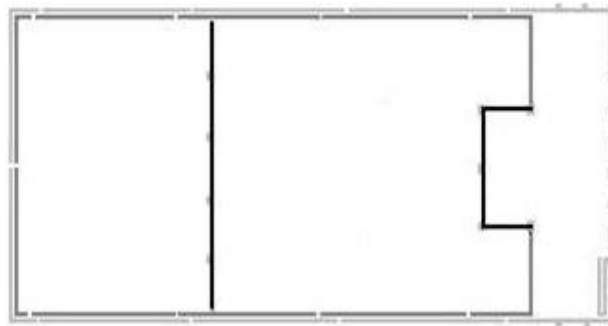


Figure 4. *The Veil and the curtain at the entrance.*

The curtain for the entrance to the Tabernacle is described in Exodus 26, 36-37. It was hanged to five pillars, two at the sides of the entrance, where also the extremities of the linen curtain were hanged; the other three were 10 cubits back, in the internal part of the Tabernacle, so as to create a sort of antechamber, where the basin for the ritual ablutions before entering the holy place was placed.

2.3. The Supporting Structure

2.3.1. The Supports of the Cover

The structure supporting the cover of the Tabernacle is described in detail, so a reconstruction may be effectuated without errors, except in some minor details. It was composed by the following elements (Ex. 26, 15-30):

15 And thou shalt make boards³ for the tabernacle of shittim wood standing up.

16 Ten cubits shall be the length of a board, and a cubit and a half shall be the breadth of one board.

17 Two tenons⁴ shall there be in one board, set in order one against another: thus shalt thou make for all the boards of the tabernacle.

18 And thou shalt make the boards for the tabernacle, twenty boards on the south side

³ The Hebrew word is *krashim* (קרשים) which means "woods". The translation "boards" is forced to meet the description of Josephus Flavius, who represents it as a proper bulky board. The *krashim* were stanchions supporting the cover of the tabernacle, not boards (see following note).

⁴ The Hebrew word has several meanings: arm, hand, forelimb, pointer, backrest, projection, bump. *The Bible of Jerusalem* says: "Each board has two supports joined together by joints". From a technical point of view there is only one possible interpretation: the *krashim* were frames made by two posts joined together by three or more transverse joints; at the bottom of each post there was a tenon that had to fit into a socket of the silver base which was placed underneath to avoid the contact with the ground.

southward.

19 And thou shalt make forty sockets of silver under the twenty boards: two sockets under one board for his two tenons, and two sockets under another board for his two tenons.

20 And for the second side of the tabernacle on the north side there shall be twenty boards:

21 And their forty sockets of silver; two sockets under one board, and two sockets under another board.

22 And for the sides of the tabernacle westward thou shalt make six boards.

23 And two boards shalt thou make for the corners of the tabernacle in the two sides.

24 And they shall be coupled together beneath, and they shall be coupled together above the head of it unto one ring: thus shall it be for them both; they shall be for the two corners⁵

25 And they shall be eight boards, and their sockets of silver, sixteen sockets: two sockets under one board, and two sockets under another board.

It was a complex structure, with 48 stanchions supporting the cover. Each stanchion was made by two joists of 10 cubits, joined by three or more transversal segments, thus forming a sort of frame. The stanchions were overlaid with gold; two rings of gold were set in the centre of each stanchion, through which a crossbar was passed. At the bottom of the stanchions there were two "extensions", one for each side, to be fitted in slots carved on the silver bases underneath. In total there were 96 silver bases, laid on the ground, two for each stanchion. They were made by casting and weighed 1 kikkar each.

There were 20 stanchions aligned on each side of the Tabernacle, plus 8 placed transversally on the back. The two stanchions at the corners were identical to the others, but the thickness of their joists was doubled, since they had to bear a heavier load (Ex. 26, 23-24).

The Most Holy Place was enclosed by the eight transversal stanchions and some of the longitudinal beyond the Veil.

⁵ The meaning of this version is not clear. The Bible of Jerusalem translates: "...They will be made by two identical parts joined together from the bottom to the top...". That is, the two stanchions of the corners were "double", as they had to bear a higher weight.

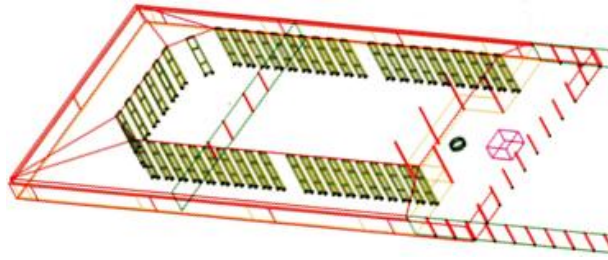


Figure 5. *The layout of the supporting structure of the cover.*

2.3.2. The Bars Connecting the Stanchions

The 48 stanchions of the supporting structure had to be perfectly aligned and connected to each other in such a way as to form a unique structure self-sustaining. This was achieved by means of 15 wooden bars, overlaid with a golden (Exodus 26, 26-29):

26 And thou shalt make bars of shittim wood; five for the boards of the one side of the tabernacle,

27 And five bars for the boards of the other side of the tabernacle, and five bars for the boards of the side of the tabernacle, for the two sides westward.

28 And the middle bar in the midst of the boards shall reach from end to end.

29 And thou shalt overlay the boards with gold, and make their rings of gold for places for the bars: and thou shalt overlay the bars with gold.

There were 10 connecting bars for the longitudinal stanchions, five for each side. They were inserted through golden rings fixed in the middle of the joists (Ex. 26, 28 and 36, 33), so that the twenty stanchions at each side of the Tabernacle became connected together and perfectly aligned. Five crossbars connected the 8 stanchions at the back (Ex. 26, 27).

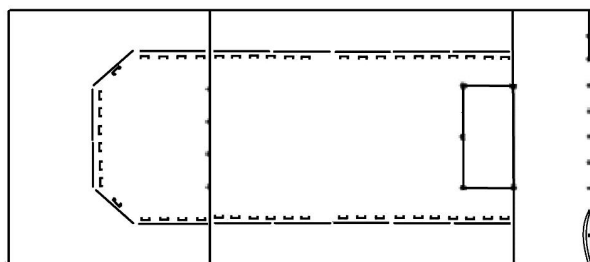


Figure 6. *The bars connecting the stanchions.*

They surrounded a semi octagonal space, closed in front by the Veil, which was hanged to 4 posts. This space was the most holy place, in the centre of which the ark of the covenant was placed.

Around the most holy place there was a room, with sloping roof, where the furniture of the temple was stored, and where the priests mounting guard inside it had their facilities.

The 4 posts upon which the veil was hanged were also part of the supporting structure, together with their silver bases, weighing 1 kikkar each. Finally, there were the 5 acacia-wood pillars for the curtain that closed the entrance, with their bases, cast in copper, weighing 2 kikkar each.

2.4. The Cover of the Tabernacle

The Bible describes this component in a truly short way, even though, from a technical point of view, it was one of the most important components of the entire building. Exodus 26, 14 says only:

And thou shalt make a covering for the tent of rams' skins dyed red, and a covering above of badgers' skins ⁶.

This indication is vague and by no means describes how the cover was done. Probably the original text was much longer and so complicated that the compiler must have decided to simplify the description synthetizing it in one single verse ⁷.

Yet this verse contains significant information, which, together with the preceding verse Ex. 26, 13, (*“And a cubit on the one side, and a cubit on the other side of that which remaineth in the length of the curtains of the tent, it shall hang over the sides of the tabernacle on this side and on that side, to cover it”*) certainly related to the cover, helps to understanding how it was made.

The key point to keep in mind is that the tabernacle was a tent destined to be mounted in the desert, so it was certainly made according to the techniques and the materials of the nomads of that part of the world.

The covering of a typical Bedouin tent is a large curtain, made by several sheets joined together, sustained by several “woods” [11]. The whole structure is fixed to the ground by means of strips of strong material, laid across on top of the cover. In this way the tent can stand the strong winds of the desert. The curtains of the cover are always woven with goats' hair that can be interwoven with coloured sheep's wool, to make brighter the roof of the rich

⁶ The Hebrew word for this animal is “takash”, which is not identifiable with certainty. The analogous Arab word means “dolphin”; most versions translate as “badger”, others simply with “leather”.

⁷ Almost certainly the two preceding verses Ex. 26, 12 and 13, were part of this description. In fact, in Ex 36 the construction process of the tabernacle is repeated word by word, but these two verses are omitted. They give a glimpse on the complexity of the cover that was certainly made by several curtains of different measures.

tents.

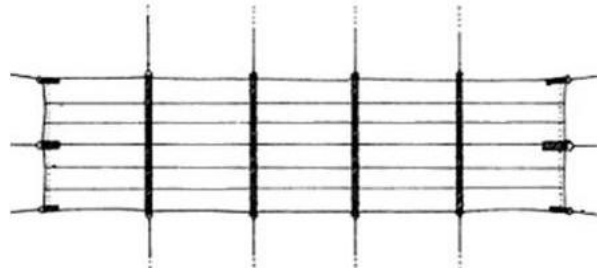


Figure 7. How a cover of a large bedouin tent is made, with long sheets of goat's hair fixed to the ground by strips laid across on top of them.

The cover of the mishkan, that is the “Dwelling in the Desert”, could not have been made with a much different technique, so the meaning of the verse Ex. 26, 14 is immediately clear. According to this verse, however, the sheets of the cover were made with “rams' skins dyed red”, a material that is not suitable for this purpose. Probably they were made with goat's hair interwoven with ram's wool, coloured red.

The central part of the cover was flat, while the sides were sloping down from 10 to 5 cubits; at this height, the curtain was left pending for 1 cubit and to this edge the walls of linen and goats' hair were fixed. Large strips of leather were stretched across on top of the cover, assuring a firm grip to the ground of the whole structure.

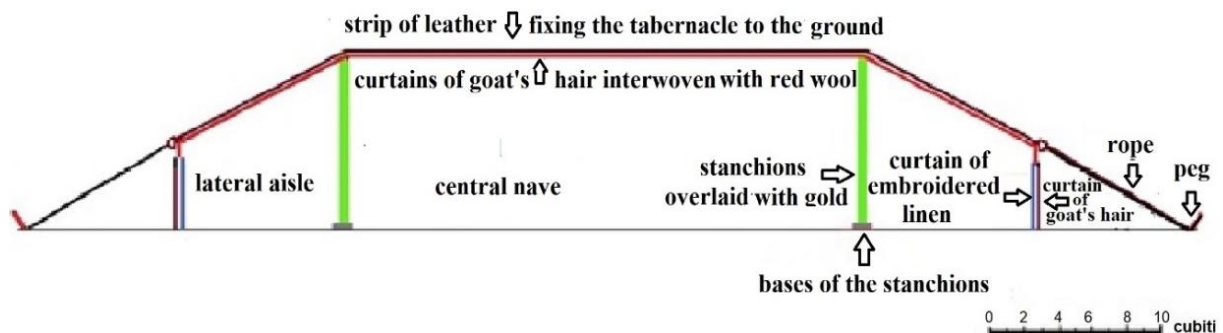


Figure 8. A transverse section of the tabernacle with all its components.

2.5. The Courtyard in Front of the Tabernacle

A description of the courtyard in front of the Tabernacle is contained in Exodus 27, 9-19:

9 And thou shalt make the court of the tabernacle: for the south side southward there shall be hangings for the court of fine twined linen of an hundred cubits long for one side:

10 And the twenty pillars thereof and their twenty sockets shall be of brass; the hooks of the pillars and their fillets shall be of silver.

11 And likewise for the north side in length there shall be hangings of an hundred cubits long, and his twenty pillars and their twenty sockets of brass; the hooks of the pillars and their fillets of silver.

12 And for the breadth of the court on the west side shall be hangings of fifty cubits: their pillars ten, and their sockets ten.

13 And the breadth of the court on the east side eastward shall be fifty cubits.

14 The hangings of one side of the gate shall be fifteen cubits: their pillars three, and their sockets three.

15 And on the other side shall be hangings fifteen cubits: their pillars three, and their sockets three.

16 And for the gate of the court shall be an hanging of twenty cubits, of blue, and purple, and scarlet, and fine twined linen, wrought with needlework: and their pillars shall be four, and their sockets four.

17 All the pillars round about the court shall be filleted with silver; their hooks shall be of silver, and their sockets of brass.

18 The length of the court shall be a hundred cubits, and the breadth fifty everywhere, and the height five cubits of fine twined linen, and their sockets of brass.

19 All the vessels of the tabernacle in all the service thereof, and all the pins thereof, and all the pins of the court, shall be of brass.

These verses apparently describe an enclosure of 50 x 100 cubits, which the traditional reconstructions maintain surrounded the tabernacle. But a close analysis reveals a different outline. If in a rectangle there are 20 posts on each of the long sides and 10 on the short ones, the total number cannot be 60, but only 56; and the length of the curtains of linen cannot be 100 cubits on the long sides and 50 on the short ones, but only 95 and 45. Exodus' description is more coherent with the configuration of the courtyard shown in the following fig. 9.

Some small "inaccuracies" indicate that the original description was modified in order to have 10 post at the front of the courtyard, instead of 13. In fact, if the width of the curtains on both sides of the gate was 15 cubits, the post had to be 4, not 3; and the posts of the curtain of the gate 5, not 4.

Although the current description is not perfectly clear, from a technical point of view there is

no reasonable alternative to the configuration of figure 9.

The outside courtyard was accessible by the common people, while the inner court was reserved for the sacrifice of the animals and their burning. The Holy Place was accessible only by the priests, after the ritual washing at the entrance, and only the High Priest could enter the Most Holy Place.

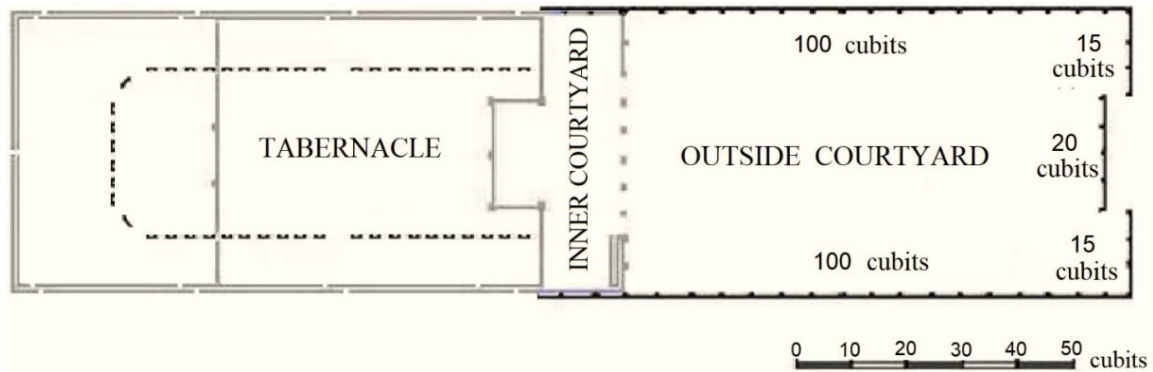


Figure 9. The configuration of the courtyard.

3. Traditional Reconstructions

A temple-tent like the Mishkan, so important for the history and the religion of Israel, has struck the imagination of innumerable persons, first lay and religious exegetes, who in every epoch have attempted to reconstruct its configuration and to decipher its symbolic meaning. The drawings representing it can be counted by hundreds, both in literature and in the web, and the mockups by dozens. [12] [13] [14]

Amazingly, all these reconstructions are inspired to the following model: a strange cubicle placed at the center of an enclosure of 50 x 100 square cubits.

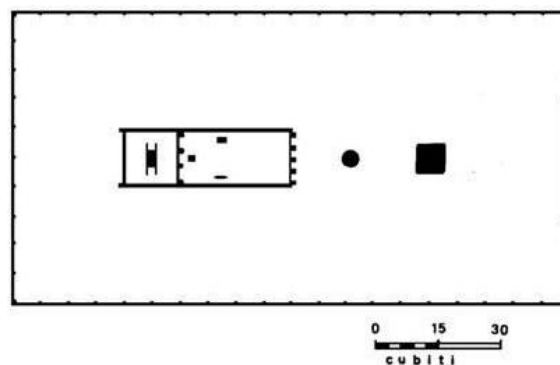


Figure 10. The model to which all the traditional reconstructions of the Mishkan are inspired.

One wonders how such a representation so distant from the description of Exodus could have

become universally accepted, not only by unorthodox scholars, but even amongst those people who believe that every single word of the Bible is true.

Evidently, at the origin of it there must have been someone whose authority on this subject was so great that nobody dared to challenge his opinion, or even to put it under scrutiny. His reconstruction has been uncritically accepted by everybody up today.

Easy to identify this man; it was Josephus Flavius. In his book “Jewish Antiquities” [15] (book 3, chapters 6-8), he provides a long description of the Mishkan, which however has only a vague connection with Exodus’ account.

Josephus Flavius was a priest belonging “*to the first of the priestly Jewish families and to the most illustrious of its tribes*” [16] (Life, 1,2). The temple of Jerusalem had an enormous importance for him, as witnessed by all his writings and particularly by his reconstruction of the Mishkan, that he describes as a mock-up in scale 1 to 2 of that Temple. This one was surrounded by a wall, and in fact, subverting the sequence of Exodus’ account, he begins describing that wall:

“When he (Moses) had measured the open court, fifty cubits broad and a hundred long, he set up brazen ⁸ pillars, five cubits high, twenty on each of the longer sides, and the pillars for the breadth behind ... and enclosed the whole space and seemed not at all unlike to a wall about it”.

Then he places inside this wall the tabernacle, which dimensions had to be reduced to fit that space. This is how he did it.

In Ex. 26, 15 30 there is the description of the 48 “krashim” (woods) that sustained the cover. Josephus Flavius calls them “pillars”, the same name he gives to all the other posts of the tabernacle. In his reconstruction, however, he transforms those 48 pillars in proper solid boards “*wrought into a quadrangular figure, in breadth a cubit and a half, but the thickness was four fingers*” ⁹. He then joins them together to form “united and entire” walls: one on each side of the tabernacle formed by 20 pillars, and one made up by the 8 pillars of the back.

In Exodus account all the krashim have the same breadth, 1.5 cubits; so joining 20 of them he obtains walls of 30 cubits; the 8 pillars of the back should have made a wall of 12 cubits, but

⁸ Exodus says that they were of acacia wood. Evidently J. F. thought that they were not adequate for a wall surrounding the tabernacle.

⁹ With these measures each “pillar” should have had a weight of about 100 kg, for a total of 4 or 5 tons. Unbelievable! A part the fact that in the desert they could not have the raw material, neither the technical means to make tables of that size.

he reduces the width of the two pillars of the corners to half cubit ¹⁰ each, in order to have a wall of only 10 cubits.

The reason for this awkward reconstruction is immediately understood from the resulting dimensions of the tabernacle: a wooden cubicle of 30 x 10 x 10 cubits, that Josephus Flavius divides in two parts of 10 x 10 x 10 cubits (the most holy, reserved to God and to the high priest) and 20 x 10 x 10 (the holy, reserved to the priests). These are the dimensions, in scale 1 to 2, of Solomon's temple, as described in 1 Kings 6, 14 seg: "*Solomon built the walls of the house within with boards of cedar ... twenty cubits on the sides of the house ... and the temple before it was forty cubits long ... and the oracle in the forepart was twenty cubits in length and twenty cubits in breadth, and twenty cubits in the height thereof*".

Same dimensions Josephus Flavius reports describing Jerusalem's Temple: "...*the king divided the temple in two parts, he made the inner house of twenty cubits, to be the most secret chamber, but he appointed that of forty cubits to be the sanctuary.*" [15] [16] (book VIII, chapter 3, § 71). Same partition, but with half the dimensions, he makes for his tabernacle: "*At a distance of ten cubits from the end, Moses placed four pillars... now the room within those pillars was the most holy place; but the rest of the room (20 cubits) was the tabernacle, which was open for the priests*".

He does not mention other essential items, like the cover or the curtains of embroidered linen or those of goat's hair, but he confusedly alludes to drapes that he connects to some characteristic of Jerusalem's temple, without giving plausible explanations.

It is quite evident that Josephus Flavius freely utilises the data of the biblical text to reconstruct a model of the tabernacle as much as possible similar to that temple, probably to suggest that its characteristics were dictated by God himself. And it appears the more evident when he explains the religious and cosmological meaning of his model: "*this proportion of the measures of the tabernacle proved to be an imitation of the system of the world. For the part which was within the four pillars, to which the priests were not admitted, is a heaven peculiar to God. But the space of twenty cubits is sea and land, on which men live, and so this part is peculiar to the priests only.*" [15][16] (book III, chapter 4, § 123). In this way he seems to suggest that Exodus' tabernacle is more a symbolic construction than a real one.

In fact, this is the tale that is offered to the tourists who visit the impressive model of the

¹⁰ In Exodus' account they have the same breadth of the others, but double thickness.

Mishkan built at Timna ¹¹, represented in the following picture. ¹²



Figure 11. The Mishkan built at Timna in scale 1 cubit = 45 cm, faithfully following the indications of Josephus Flavius. ^[12]

All the exegetic reconstructions of the tabernacle are inspired to this model, with no exceptions, and most versions of the Bible force the translation of verses and words in order to match that model.

Ironically, Josephus Flavius, a high priest, not only participated to the destruction of his beloved Temple, but through his awkward reconstruction of the Mishkan he also gave an important contribution to harming the credibility of the biblical text. In fact, he offers the scholars an excellent pretext for maintaining that Exodus' description is inspired to Solomon's Temple, thus inducing strong skepticism on its reliability and correctness, with consequences for the entire biblical account, which most of them consider just symbolic.

4. Weights and Lengths Used in the Tabernacle

4.1. The Units of Length

A major problem when reconstructing the Tabernacle, is that of the units of length and weight mentioned in the account. The units used by the Bible for this handicraft are the cubit, for the lengths, and the “kikkar” and the “shekel”, for the weights.

The cubit is given different lengths in the literature, the most common of which are 44 cm for Moses' cubit and 52,5 cm for Ezekiel's ¹³. The Mishkan built in Timna has adopted a measure of the cubit of about 45.72, which was probably the length at the time of Solomon or of

¹¹ Timna Valley, north of Eilat, an outstanding park, with a variety of scenic, geological, and archaeological sites of global significance.

¹² Tabernacle model - Timna - Biblical Israel Ministries. By Ruk7 - Own work, CC BY-SA 3.0, [https:// commons.wikimedia.org/w/index.php?curid=15125748](https://commons.wikimedia.org/w/index.php?curid=15125748)

¹³ For the biblical cubit several measures were proposed by authoritative Rabbis, from 38 to 64 cm (see: [https:// en.wikipedia.org/wiki/Cubit](https://en.wikipedia.org/wiki/Cubit)). The mishkan at Timna was built with a ratio 1 cubit = 45.72 cm.

Josephus Flavius, but there is no evidence that it was the value of Moses' cubit.

Adopting that measure, the size of the tabernacle appears to be excessively large for a tent that had to be raised in the desert and transported along its rough trails, and was out of proportion for the use it was designed to. Besides, a tent as high as 4.5 metres could not possibly stand the strong winds of the desert. All the Bedouin tents do not exceed the height of 3 metres for this reason.



Figure 12. The wall around the tabernacle and the altar of burning offerings in Timna. They are made with the value of the cubit set to 45,7 cm. They are clearly out of proportion. ¹⁴

Also unjustified was the height of the curtains surrounding the courtyards (2,2 meters), which only function was to delimit its perimeter, not to hide what was going on inside. And out of proportion are the 1,5 x 2.5 meters (3 x 5 cubits) of the altar for the holocausts, upon which the victims of the sacrifices were burnt; operation almost impossible for a priest, unless there was a huge scaffold aside, which is not mentioned in the narrative. Besides, an object of that size could not be transported by shoulders.

Finally, the huge quantity of materials necessary to make a tent of that size was an absurd waste, and their weight so out of proportion as to make almost impossible the transport around the desert.

The word used by the Bible is באמה (bammah), that is the bone of the forearm called cubit, or ulna, which length is about 30 cm. Most measures of length are related to parts of the body (foot, finger, palm etc.) and their value is in accord with the dimension of that part. Why should Moses' cubit make exception? A measure around 30 cm looks by far more likely for it (we will see in a while that it was 29,2 cm).

With this value the dimensions of all the components of the Mishkan become realistic and feasible with the materials found in place and those brought from Egypt for that purpose.

4.2. The Units of Weight

¹⁴ From personal archive of the author.

To evaluate the reliability of the account it is important to also know the real value of the units of weight used in Exodus and Numbers: the “kikkar”, translated as “talent”, and the shekel.

For some reason, most scholars attribute to the biblical talent the incredible weight of about 35 kgs. With this value the quantity of gold, silver and copper employed in the manufacturing of the Mishkan would have been of more than 7 tons; 3 tons of silver just for the 96 bases of the 48 stanchions of the tabernacle. Absurd quantities.

Once again, it is not Exodus' account which exaggerates, it is the value attributed to Moses' kikkar which is out of scale. The word “kikkar” (כִּכָּר) means “loaf of bread”, and it is reasonable to think that its weight was equivalent to that of a loaf of that time: two or three kgs at the most.

The same order of magnitude appears to be correct from several verses of the Bible where the kikkar is involved. For example, in 2 Sam. 12, 30 and 1Cr. 20, 2 it is written: “...and he took their king's crown from off his head, the weight whereof was a talent of gold with the precious stones: and it was set on David's head”. A crown of 35 kgs? Unbelievable.

There must be a gross mistake of evaluation. I could not find who was the first who established this value, but I did find what was the rationale for it. There is no research, or some archaeological discovery involved. The answer comes from the Bible itself. In Exodus 38, 25-26 it is written:

*25 And the silver of them that were numbered of the congregation was an hundred talents, and a thousand seven hundred and threescore and fifteen shekels, after the shekel of the sanctuary:
26 a beka for every man, that is, half a shekel for every one that went to be numbered, from twenty years old and upward, for six hundred thousand and three thousand and five hundred and fifty men.*

According to these verses the collected sum was of 301.775 shekels, therefore 100 talents had to contain 300.000 shekels, that is 1 talent = 3,000 shekels of the sanctuary. As the weight of the shekel was between 9,5 and 11, 4 grs, the talent had to weigh between 28,5 and 34, 2 kgs. Undisputable, if it was not that the indications given by those verses are wrong and they have been understood in an even worse way.

That silver was not related to the number of the Israelites registered by Moses: it was the quantity collected for the manufacturing of the mishkan as clearly indicated in Ex. 31, 21-30; and the number 603,550 is due to an inappropriate choice of the meaning of the word “elef”,

which means “thousand” but also “chief”. During the exodus Moses registered twice the men able to the war (Nm. 1, 20-46; Nm. 26, 3-31), counting for each tribe the number of the “elef”, the chiefs, that is the direct descendants of Jacob, numbered one by one, and that of the common soldiers, who were numbered approximately.

Table 1 - Numbers of men able to combat registered by Moses in the two censuses made during exodus.

Tribe	1° census		2° census		Variation	
	elef	soldiers	elef	soldiers	elef	soldiers
Ruben	46	500	43	730	-3	+230
Simeon	59	300	22	200	-37	-100
Gad	45	650	40	500	-5	-150
Judah	74	600	76	500	+2	-100
Issacar	54	400	64	300	+10	-100
Zabulon	57	400	60	500	+3	+100
Efraim	40	500	32	500	-8	----
Manasseh	32	200	52	700	+20	+500
Benjamin	35	400	45	600	+10	+200
Dan	62	700	64	400	+2	-300
Aser	41	500	53	400	+12	-100
Neftali	53	400	45	400	-8	----
total	598	5.550	596	5.730	-2	+180

The first registration gave 598 “elef” and 5,550 soldiers. With the word “elef” meaning “thousand” the total number becomes 603,550, out of proportion for the exodus’ Jews. Therefore, an evaluation of the talent based on these verses is unjustified.

The ratio 1 talent = 3,000 shekel is simply unbelievable. In Ex. 30, 13 it is stated that 1 shekel = 20 gerahs, and a verse in the New Testament (Mt. 18, 24) suggests that 1 talent = 6,000 gerahs; therefore 1 talent should be equal to 300 shekels, that is a weight between 2,8 and 3,4 kgs.

With this value the quantities of gold, silver and copper used in the Tabernacle (Ex. 38, 21-30) are respectively of 90÷107, 300÷360 and 210÷265 kg, for a total weight of 600÷730 kg; quite

reasonable.

5. Coherence of Exodus and Numbers' Description

The mishkan was a mobile tent and according to the account it was transported around the desert and finally to Canaan. The Jews had to have means of transport apt to this task. In Numbers 7, 2-7 is written that *“the princes of Israel ... brought six covered wagons and twelve oxen ... and Moses took the wagons and the oxen and gave them unto the Levites. Two wagons and four oxen he gave unto the sons of Gershon”* for the transport of *“the tabernacle, and the tent, and the covering thereof, and the hanging for the door of the tabernacle. And the hangings of the court, and the curtain for the door of the court, which is by the tabernacle and the altar round about, and the cords of it.”* (Nm. 3, 25-26). The total weight of those materials can be evaluated between 300 and 400 kgs, therefore 150-200 kgs for each cart. The need of two carts was due more to the volume, than to the weight of those materials.

“And four wagons and eight oxen he gave unto the sons of Merari” (Nm. 7, 8) for the transport of *“the boards of the tabernacle and the bars thereof, and the pillars thereof, and the sockets thereof, and the vessels thereof, and all that serveth thereto, and the pillars of the court round about, and their sockets, and their pins, and their cords.”* (Nm. 3, 36-37). The total weight of all these materials can be calculated at no more than 2 tons, that is no more than 500 kg for each cart. Reasonable.

“But unto the sons of Kohath he gave none: because the service of the sanctuary belonging unto them was that they should bear upon their shoulders” (Nm. 7, 9), *“... the ark, and the table, and the candlestick, and the altars, and the vessels of the sanctuary, and the hangings, and all the service thereof”* (Nm. 3, 31). Each of those items could be transported by two men, a part the altar which needed at least four.

The means of transport are coherent with the weight and volume of the materials to be transported and this is a strong argument in favour of the reliability of the account.

More than that, the coherence of all data relative to the mishkan is compelling evidence that they could not have been transmitted verbally for centuries. A complex project like the tabernacle, which is an assembly of several components that must fit to each other like the tesserae of a puzzle, needs a set of precise and detailed instructions that could not be imagined, memorized, and transmitted in words. They had to be put in writing when it was designed.

And there is plenty of evidence that Moses and his assistant Joshua knew how to write and regularly recorded the most relevant events (Ex. 17,14; 34,4; 34,27; Nm. 33,2; Dt. 27,1-3; 28,58; 29,19-20; 30,10 e 31,9-24; etc).

Conclusion: the description of the Mishkan demonstrates that Exodus and Numbers are not symbolic, but faithful accounts of exodus' events.

6. The Imprint on the Ground

A confirmation is given by a discovery that I made when I joined Anati's research team in Har Karkom. That kind of desert is called "hammada" and it is an open-air archive of the past. Its main characteristic is that of being covered by a compact layer of pebbles, which prevents any process of erosion or sedimentation, so it keeps unchanged the imprints of whatever tent was erected there in the last twenty or thirty thousand years, as can be seen in figure 13

The reason for it is quite simple: when somebody erects a tent, he cleans the floor from the pebbles and when he leaves, a clear outline of the tent remains imprinted on the ground.



Figure 13. Har Karkom- imprints of a group of Palaeolithic tents.

If it was true for tents of thirty thousand years ago, was my thought, it had to be true also for a large tent of "only" three thousand years. And if exodus' events really took place on that valley, as Anati maintains, the Mishkan was erected somewhere around there. They had to clean from stones and pebbles at least the most sacred parts of it and all the passages more frequented, thus producing an imprint well recognizable, to which my reconstruction, if it was correct, had to correspond. And so it was.

According to Exodus 33,7, the Tabernacle was erected "*outside the camp, far away from it*". Besides, it had to be near the water, that is near the only well of that area: Beer Karkom. From up a hill the imprint was immediately identified (see fig. 14 ¹⁵).

¹⁵ From personal archive of the author.

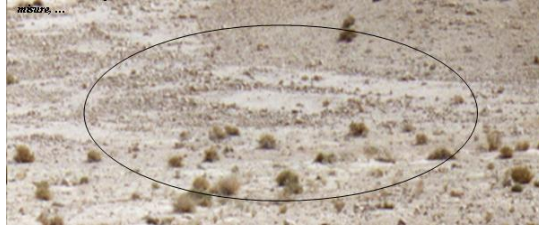


Fig. 14. *The imprint on the ground of the Tabernacle*

We surrounded the imprint with a plastic ribbon, following the plan as reconstructed on the base of the account. The match was perfect. The chances that it might be a simple coincidence are, in my opinion, almost nil. It is therefore evidence that the tent erected on that spot was the same described in Exodus.

Thanks to the imprint on the ground, it was possible to draw the plan of the tabernacle in its true original layout; some small mistakes made in the first reconstruction based on Exodus text only (see fig. 1) could be corrected, as well as the precise position of every piece of furniture.



Figure 15. *Reconstruction of the plan of the Tabernacle on its imprint.*

The correct outline of Moses' Tabernacle is represented in fig. 16.

⁶ In his final report Anati describes this imprint as “*remains of encampment*”, (see [2] site BK 411a, pag. 50).

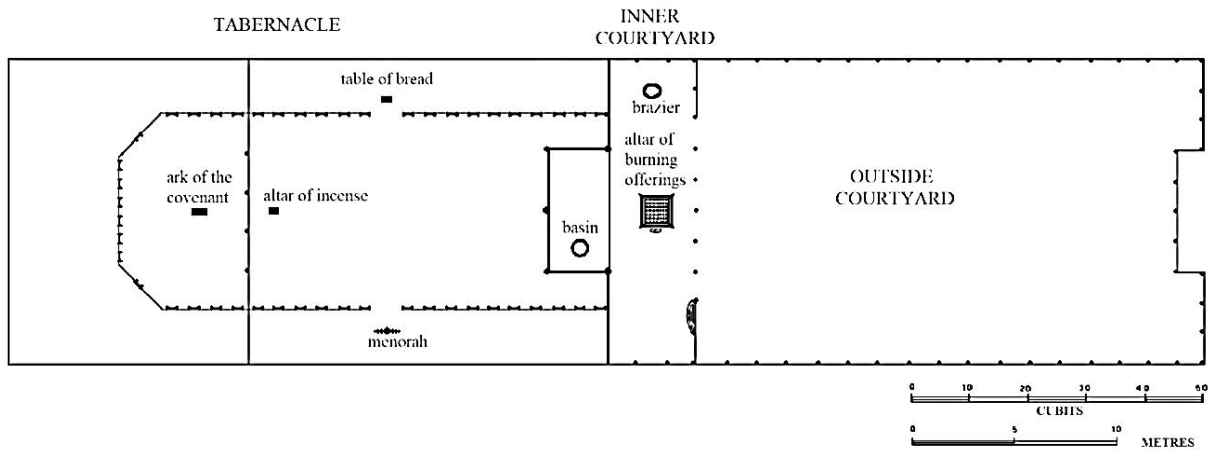


Figure 16. The precise plan of the Mishkan drawn from the imprint on the ground.

The dimensions of the Tabernacle were 14,50 x 29 meters and those of the inner court about 14,50 x 4,50. Therefore the value of Moses' cubit, measured on the ground, was of 29,20 cm.

7. Conclusions

The reconstruction of the Mishkan offered by traditional exegesis does not meet Exodus and Numbers' description. Besides from a technical point of view an object like that could not have been produced neither transported with the materials and the means at the disposal of the exodus' Jews. The logical implication is that it was never built and therefore the biblical account is not truly historical.

The reconstruction made in strict adherence to the biblical account, instead, looks technically correct, credible, and consistent with the capabilities and means of the Jews in the wilderness, thus demonstrating the reliability of the account. Besides, the project of the Mishkan is complicated but so coherent that it appears improbable that it could have been designed and transmitted verbally for centuries; it had to be put in writing at the time of the exodus and transmitted since then with minor corruptions. This proves that the biblical account is truly historical at least for what concerns all the events related to the Mishkan.

Definitive evidence is provided by the imprint discovered in the actual place where the Tabernacle was erected for the first time.

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