

*The Temple of Solomon Could not Stand
On its Water Tower*

-11-

**THE WATER CONVEYANCE SYSTEM
OF THE TEMPLE OF JERUSALEM
WITH
LIVING PURIFYING SPRING WATERS
AND
CLEANSING WATERS
UNDER PRESSURE**

**THE HARAM UNDERGROUND
NETWORK OF
CISTERNS, CANALS AND CONDUITS**

OVERALL PRESENTATION

*The Temple of Solomon Could not Stand
On its Water Tower*

*The Temple of Solomon Could not Stand
On its Water Tower*

1/ The site of early Jerusalem had been so transformed in the course of the last three millennium of its turbulent and violent history that it is quite impossible to reconstruct it in its initial ancient form, or even its successive forms.

In fact only two series of topographical certitudes remain :

-A- Some rare facts, such as the configuration of the Haram originated from the Muslim occupation in the 7th century EC and 8th century EC.

-B- A double almost transtemporal certitude :

a/ The topographical contours levels of the underground bedrock, as measured in the 19th century, including those of the **underground of the Haram** that mainly resulted from the *Ordnance Survey* and diverse works of Wilson, Warren, Conder and Schick.

b/ The incrustations inside this bedrock that had been built up across the centuries and remained intact, as had the Cisterns and conduits cut inside the rock.

(However for some part of the underground near to the surface of the Haram, it is sometimes necessary to take into account underground works and modifications that had been made by the Muslims after the Crusades, in particular on the sides of the Al Aqsa Mosque, in view of providing water to the faithful for the ritual washing of hands and feet for the Muslims.)

2/ In examining the topographical contours and elevations of the bedrock that were surveyed in the 19th century by Wilson, Warren, Conder and Schick, it can be remarked that early Jerusalem was situated on a rocky promontory, sloping from north to south, between two steep sided valleys :

- The Valley of Kedron to the east, and the Valley of Tyropean to the west.

In the upper part of this promontory, the slope descending towards the valley was very steep and abrupt, and sometimes almost vertical.

At its summit, to the north, the rocky promontory culminated at **743 metres altitude** at the present site of the Dome of the Rock.

*The Temple of Solomon Could not Stand
On its Water Tower*

The rocky promontory inclined from north to south with an increasing slope that ended above the confluent of two valleys that enclosed it.

The promontory of ancient Jerusalem was thus protected to the east, to the west and to the south by the very deep ravines that enclosed it.

The summit of the promontory, which is at present constituted by the inner platform of the Dome of the Rock, was limited to the north by a transversal rocky depression that was quite deep, as revealed by the levels of the underground rock that were surveyed in the underground of the Haram by the 19th century Archaeologists. (See Map)

Therefore, it can be imagined that from the strategic point of view, during the first phases of development of the ancient City, this depression was used as a defensive trench by the Jewish Citadel that dominated the rocky promontory, making an effective defence element of this natural summit.

It is on this same spot that the Citadel of David and Solomon the Citadel of the Hasmoneans, then the Antonia Citadel of Herod, were to be built, succeeding each other, and followed finally by the Haram.

The transversal rocky depression, situated to the immediate north of the internal platform of the Dome of the Rock, was entirely filled-in during the extension of the ancient Herodian Esplanade of the Fortress Antonia to transform it into the Haram, on the orders of Abd al-Malik, so as to position the Dome of the Rock, altogether in the centre and on the summit, of a vast Esplanade allowing thus circumvolutions Rites around the Muslim Sacred Rock, designed specifically to rival with that of the Rituals around the Kaaba in Mecca, and with, even, the clearly declared political ambition by the Umayyads of outdoing it.

3/ Initially Jerusalem, created by David as the Capital of the Jewish Kingdom, was supplied with water from the Gihon Spring that flowed from the eastern flank of the Jebusean Promontory, downstream of the Kedron Valley.

Later, during the reign of Ezechias, this Spring was diverted by a tunnel so that it flowed into the Siloam Pool, situated inside of the ramparts of Jerusalem, so as to provide the City with water in the case of siege.

*The Temple of Solomon Could not Stand
On its Water Tower*

Further, in a more general manner Cisterns cut in the rock of Jerusalem enabled most families and various communities to store large quantities of rain waters during the rainy periods of the year.

But, very soon, the lower city of Jerusalem, that is to say the lower part of the promontory, developed and its population tended to overflow in peace time into the Tyropean Valley. Thus from a general point of view, an additional supply of water, both for the population and its animals, was necessary :

It was in this perspective that at least two dams for reservoirs were built to collect rain waters that flowed down from the hills situated to the north of Jerusalem:

a/ A dammed Reservoir, at the outlet of the Bethseta Valley, situated to the north east of the ancient Jerusalem and preceding the Kedron Valley : this dam-reservoir was constructed at the site of the 'Sheep's Pool' situated to the north east of the Haram.

b/ A dammed Reservoir, at the outlet of a natural circle formed by the hills situated to the north west of the Haram, with, as the last collecting point for these rain waters, the Pool of Struthon.

From these two dammed Reservoirs, a few vestiges of two **aqueducts cut into the rock** still remain today : these aqueducts carried the waters to the lower Davidic City.

a/ The aqueduct from the dam of the Struthon Pool ran from north to south in the bedrock along the external base of the western rampart of the Haram.

b/ The aqueduct from the dam of the Sheep's Pool ran from north to south in the bedrock along the external base of the eastern rampart of the Haram.

In fact, only the lower part of the ancient City could be adequately supplied by these two aqueducts, because their waters could neither rise to the summit of the promontory where the ancient Jewish Citadel stood (Haram) nor to the level of the platform where the Temple once stood downstream from this Citadel (Haram).

In fact also, the transversal depression in the rock, filled in by the Umayyads, beneath the northern part of the Haram, separated these two dam reservoirs from the rock crest of the promontory:

For example, Conder carried out measurements in the underground rock at the level of the Pool of Israel, the base being on the flank of this underground depression, and he noted that the rock at the level of the flow from the Israel Pool was situated at height of **715 metres** above sea level, whilst the surface of the Haram is at an average altitude of **738 metres** above sea level.

*The Temple of Solomon Could not Stand
On its Water Tower*

4/ The survey of the underground rock of the Haram and its adjacent area, as well as the geological data supplied by Conder, reveal that in the summit of the promontory of antique Jerusalem, that is to say the nowadays Haram, the underground bedrock had, and still has, an oval form, a little like that of a human face. (cf. Map)

The axis of this underground rock oval declines with an average downwards slope of 15° from north-north-west, that is to say from the area of the internal platform of the Dome of the Rock, downstream and south-south-east to the area of the Triple Gate of the southern rampart of the Haram.

The Esplanade of the antique Jewish Citadel, now Haram, is a rectangular platform, half natural and half man-made, that was built around and above this oval face-like rock that served as a foundation.

This rectangular platform has been surrounded by four ramparts, and the space inside between the sloping surface of the natural rock and the vertical ramparts has been filled with earth and rubble to form an elevated flat horizontal surface.

According to the reconstitution and geological terminology of Conder :

-A- The upper layer of the Jewish citadel (Haram) was constituted with earth, rubble and mezzeh, a kind of fossilised clay.

This upper layer ("mezzeh" according to Conder terminology) filled the entire surface and all the space between the bedrock and the ramparts of the Haram.

Its horizontal surface nowadays, by simplifying, consists of three levels, with a slight difference between the three.

This upper layer (mezzeh) is not completely impermeable and consequently, in antiquity, could neither be used for Water Cistern-Reservoirs nor for constructing Water Channels.

-B- Beneath the upper layer, made of earth, stones and mezzeh, is an intermediary bed of rock in the form of an oval face-like, descending towards the south with an inclination of 15° from the "Muslim Holy Rock" of the Dome of the Rock, where this rock projects onto the surface of the Haram.

From this Rock at the summit, this layer of rock progressively descends with a an inclination of 15° into the underground of the Haram to a depth of about forty metres relative to the Haram's surface : this layer of rock reappears downhill and outside of the Haram, where it is in general completely denuded.

According to the terminology used by Conder, this rock is called 'Malachite'.

*The Temple of Solomon Could not Stand
On its Water Tower*

This sloping layer of malachite rock is between twenty and thirty metres thick and is impermeable : therefore it can retain Waters.

-C- Below this intermediary layer of Malachite is another impermeable layer of rock called 'Dolomite' by Conder.
Both of these rock layers are superposed with the same average inclination of 15° from north to south.

It is mainly within the layer of Malachite, and to a much lesser degree within the layer of Dolomite, that the Cistern-reservoirs were built in Antiquity by the Jews inside the natural rocky foundations of the Jewish Citadel (Haram), situated upstream of the platform on which the lost Temple stood.

This same platform of the Temple was completely razed by Hadrian, and the antique Citadel of the Jews became later the Haram of the Muslims.

- In the present Study the underground Cisterns built in masonry at a later period will not taken into consideration.

A Plan Map of the underground Cisterns and the Channels in the rock beneath the Haram, whose altitudes above sea level have been calculated on the basis of the Data transmitted by the 19th century Archaeologists, illustrates this Book and allows visualising, step by step, the Demonstration, that follows below infra.

5/ The horizontal surface of the Haram is composed of several levels.
These successive strata, a few natural, others mostly man made, covered with their horizontal planes the natural slopes of the original rocky Promontory.

The primitive rocky geological slopes descended from the summit marked by the Muslim Sacred Rock (Dome of the Rock) towards the four cardinal points of the compass :

- To the east and west in the direction of the Kedron and Tyropean Valleys, which tightly closed in the Promontory, on its eastern and western flanks.

*The Temple of Solomon Could not Stand
On its Water Tower*

- To the north in the direction of the transversal depression of the rock situated to the north near the internal platform of the Dome of the Rock.
- To the south, in the direction of the natural slope of the promontory that falls steeply from north to south towards the Siloam Pool.

Because of the topography of this original base rock, the different horizontal levels, built, and rebuilt, over the passage of time, have been designed with a shallow slope so as to permit the drainage of rain waters in the rainy seasons to be collected in the Cisterns situated underground at the four cardinal points of the Haram, and at the extremities of its bedrock summit so as to store the maximum quantity of waters for the dry seasons.

By simplifying the Data of the 19th century Archaeologists, three different levels can thus be distinguished at the surface of the Haram, (descending from the top) :

- The level of the internal platform of the Dome of the Rock culminating at an elevation of **743 metres** above sea level.
- An intermediary level at a median elevation of **739 metres** above sea level.
- The level of the remainder of the surface of the Haram is at a median elevation of **737 metres** above sea level
- In addition the surface of the Haram falls slightly at places near to the ramparts, where, at certain points, the surface of the Haram is at an elevation of **736-735 metres** and on rare occasions below.

In a general manner the average figure of **737-738 metres** can be taken as acceptable as an approximate reference for the elevation of the Surface of the Haram above sea level when it is necessary to evaluate the approximate comparisons of the underground Measurements carried out in the bed rock beneath the Haram by the 19th century Archaeologists.

6/ The detailed systematic Exploration and the precise Measurements taken of the Cisterns and the different Channels and Conduits in the Haram rocky underground were principally carried out in the 19th century by Pierotti, Barclay, Wilson, Conder and Schick.

Conder has collated the whole of these measurements, especially the respective elevations between the surface levels of the Haram and the levels of the underground rock of the Cisterns.

On the one hand, Wilson, Warren and Conder, and on the other hand Schick, have separately published systematic Surveys, with sometimes differing figures, without however, diverging in any important or significant manner.

*The Temple of Solomon Could not Stand
On its Water Tower*

In general it seems that Schick, with the official preparation of the scale model of the Haram for the Universal Exhibition of Vienna, had from the overall point of view obtained more facilities than, for example, Warren to carry out his exploration of the Haram underground.

Thus whenever the Data of the Surveys collected by Warren or Schick diverge, it was necessary, for the purpose of the present Study to choose between one of the following options :

- To privilege the figures of Schick.
- To use an average between the figures of Warren and Schick
- To use the figures of Warren, or of Schick, which appeared to correspond best with the general cohesive Arrangement of the whole underground Hydraulic System.

7/ The underlying subtle rivalry that reigned between Warren and Schick resulted in a different numbering System in both of the Key Publications on the Hydraulic Installations System in the Haram rocky underground.

- For **Warren**, the Temple of the Jews had necessarily stood on the internal Platform of the Dome of the Rock.

On the basis of this hypothesis, Warren gave the first five numbers (**Cistern n°1**, **Cistern n°2**, etc.) to the Cisterns beneath this Platform, even though these Cisterns were obviously less ancient, even though they were very smaller than all those situated downstream to the south, and even though the final construction of parts of these Cisterns was obviously of a late period, even of the Muslim period.

- For **Schick**, the Temple of the Jews had also necessarily stood on the internal platform of the Dome of the Rock.

But, guided by a subconscious and latent instinct, Schick's numbering of the Cisterns commenced with those that received the Purifying Waters from the Etam Aqueduct, which is to say the giant underground Cisterns to the south and far downstream from the Dome of the Rock.

Therefore, these Cisterns bore the first numbers (**Cistern n°1**, **Cistern n°2**, etc.) in Schick's System.

Nevertheless, even if Schick's numbering System is absolutely more coherent, and corresponds to the Historical and Archaeological Reality, it has been decided to use Warren's numbering System, in the present book, for a number of following reasons :

*The Temple of Solomon Could not Stand
On its Water Tower*

- Effectively, it seems that a credit is due to Warren because, on the one hand, he drew up the Survey plan with the Elevations of the different levels of the subterranean rock of the Haram, without which the present Study could never have been realized, and, on the other, he was the first Archaeologist who had attempted to establish the most complete Inventory of the **subterranean Hydraulic Installations**, in difficult and on occasions even dangerous conditions. (But he never guessed, as all the 19th century Archaeologists, that he was, in fact, exploring a **coherent and totally united Dynamic Hydraulic System**.)

- Further, most of the 19th and 20th century archaeologists adopted Warren's numbering System, even if more recent and elaborate Studies have begun to privilege the more coherent System established by Schick.

8/ The **Cisterns** of the underground Hydraulic System of the Haram can be classified into **different categories** based on a number of **diverse criteria** :

- Criteria relative to their material and the nature of their construction -

-A- / The ancient Cisterns were cut into the heart of the natural bedrock. The technique consisted of boring a more or less vertical shaft from ground level. Then once the bedrock was reached the shaft was continued for the thickness of what was to form the underground Cistern's roof. The work then continued in a downward direction progressively enlarging the perimeter of the cavity to form the Cistern itself, which in early antiquity took, most often, the shape of an amphora, more or less round and more or less deep. During early Roman times, the form of subterranean Cisterns tended towards rectilinear and geometric forms with right angles. When the Cistern was completed, the openings that had been used for its construction were hermetically sealed with stone blocks either temporarily or permanently. Certain of these openings, left open and situated above at ground level, could then be used as well shafts or channels to collect rain waters, whilst others were used as water supply conduits or access for maintenance. In the same manner stairways were progressively built into the rock to facilitate access for workers during the construction of the Cistern. These stairways could later constitute passage ways for drawing water, or for the adjustment of weirs and other arrangements installed to control the flow of waters, as well as for general maintenance of the installations.

*The Temple of Solomon Could not Stand
On its Water Tower*

-B- / Certain Cisterns, that had initially been cut inside the rock, in greater antiquity, were successively enlarged and transformed by masonry works.

Part of this masonry work dated from the time of Herod, whilst most other parts could be attributed to the Muslims :

Such is the case for the Cisterns that are found directly beneath the inner platform of the Dome of the Rock, or in its immediate proximity, some of which were modified by the Umayyads for the edification of the Dome of the Rock as a new Sanctuary for Islam destined to replace the Kaaba of Mecca.

In addition, certain underground Cisterns were transformed into Mosques over the ages.

- Concerning all these Cisterns, certain of which had large sections built in masonry, only the parts originally cut into the rock, wholly or partially, are taken into account in the present book.

- Or are taken into account, in this Study, only those Cisterns where the masonry could be logically attributed to the works of Herod as an improvement of the whole underground Hydraulic System designed for the Worship in the new Herodian Temple.

-C- / The most recent Cisterns were built in masonry by the Muslims in the mezzeh layer of the Haram.

This is specifically the case for certain Cisterns built in the western part of the Haram, or in the parts of the Tyropean Valley that had been filled next to the ramparts in ancient times, in order to raise the ground to the level of the Jewish Citadel's surface.

In the present book, these Cisterns which were not cut inside the bedrock are not taken into account as they are most probably posterior to the destruction of the Temple of the Jews.

9/ It is also possible to classify the Cisterns, in the underground rocky Hydraulic Network, in different categories and according to other criteria :

**- Criteria relative to their Water Supply, to their Size, to their Depth
and to their Elevation above sea level -**

From the moment it was established, on the basis of Biblical precepts, that Living Waters issued from a Spring were the only Source of Supreme Purification in the Jewish Sanctuary, the organisation of the Temple Hydraulic System was developed relative to the geological imperatives of the subterranean bedrock situated upstream of the Temple, that is to say beneath the antique Jewish Citadel that was to become the Haram.

*The Temple of Solomon Could not Stand
On its Water Tower*

The Aqueduct of Solomon, or the **Etam Aqueduct**, carrying Living Purifying Spring Waters to the Jewish Sanctuary, penetrated into the underground beneath the Haram, at an elevation of **728 metres** above sea level, and **10 metres** beneath the average surface level of the Haram situated at an elevation of **738 metres**.

These Living Spring Waters could therefore only flow further on to a lower elevation for Storage :

This is why the five largest Cisterns of the Sanctuary's Water Reservoir (Water Tower) were obligatorily concentrated at the extreme south of Haram's subterranean bedrock with their bases situated at an elevation necessarily less than 728 metres, that is to say at an elevation between 724 metres and 716 metres above sea level.

These **5 giant storage Cisterns** are according to Warren's numbering System :

- **Etam Aqueduct** (for Reference) :
728 metres altitude : **10 metres** below the surface of the Haram.
- **Cistern n° 8 (The Great Sea):**
Elevation at its base : **724 metres** : **13 metres** below the surface of the Haram.
Approximate storage volume : **12 millions litres** of water.
- **Cistern n° 9 :**
Elevation at its base : **724 metres** : **20 metres** below the surface of the Haram.
Approximate storage volume : **1.500.000 litres** of water.
- **Cistern n° 7 (The Sea):**
Elevation at its base : **717 metres** : **19 metres** below the surface of the Haram.
Approximate storage volume : **8 millions litres** of water.
- **Cistern n° 11 :**
Elevation at its base : **715 metres** : **22 metres** below the surface of the Haram.
Approximate storage volume : **5 millions litres** of water.
- **Cistern n° 10 :** (Sloping from upstream to downstream : Propulsive Cistern)
Elevation at its base : **721 metres** : **16 metres** below the surface of the Haram.
Approximate storage volume : **2 millions litres** of water.

*The Temple of Solomon Could not Stand
On its Water Tower*

10/ The Cisterns of the underground Hydraulic Network of the Haram could also be classified into different categories and according to other criteria :

- Criteria relative to their Chronology and the Progress in Hydraulic Technology -

On this basis three major phases can be distinguished in the development of the underground Hydraulic Network built in the bedrock upstream of the Temple by the Jews (nowadays Haram) :

-A- The Installations from period of Solomon and his Successors (1st Temple) that include amongst others :

-a The **Etam Aqueduct** (or the **Aqueduct of Solomon**, or **Lower Aqueduct**), which passed on the Wilson Arch to enter into the Haram underground.

-b **Cistern n° 8** (the 'Great Sea' mentioned in the Septuagint)

-c **Cistern n° 9**

-d The south circular commencement of **Cistern n° 10**

-e The **Distribution Network** that passes under the Triple Gate, and flowed, downstream, from the antique Jewish Citadel (Haram) to supply the lost platform of the Temple.

-f Certain elements in the rock of the first Cisterns designed to collect and store rain waters that did not flow directly from the summit of the promontory downstream south to the giant Cisterns which collected altogether Living Spring waters and rain waters :

These first Cisterns for the collection and storage of rain waters flowing on the northern slopes of the rocky promontory were mostly situated around the platform of the Dome of the Rock.

-g The branch of an old channel that carried downstream to the south the rain waters collected on the north side of the antique Jewish Citadel (Haram).

This old branch is situated at the extreme west of **Cistern n° 5**, which will be installed by Herod, during the modernisation of the whole of the underground Hydraulic System designed to supply the new Temple that was, then, in construction (cf. infra).

-B- The Installations from period of the Macchabees, Hasmonean Great Priests and Leaders, or Kings (2d Temple) that include amongst others :

-a **Cistern n° 7** (The 'Sea' mentioned in Siracid)

-b Probably **Cistern n°2** and **Cistern n°34**.

*The Temple of Solomon Could not Stand
On its Water Tower*

-C- The Installations from period of Herod (3rd Temple) when Roman technology influence (Agrippa) was particularly felt, that include amongst others :

- a Cistern n°11**
- b Cistern n°10** in its final form
- c Cistern n°5**
- d** In their final form : **Cisterns n°1, n°3, n°37, n°14, n°13, n°12, n°6, n°36.**

11/ The principal lines of development of this Underground Hydraulic Network will be examined in detail, infra :

Generally speaking, these lines of development were conditioned by the following technological progress :

-A- During the Solomon period :

a/ The first Cisterns of this period were cut as giant formless Caverns (**Cisterns n°8 and n°9**).

b/ These huge, deep, caverns had to be supported at their centre by pillars, left in the mass of the rock, during the excavations works, and around which the Cistern was dug out.

c/ The Aqueduct, the Cisterns and the downstream Water Distribution Network were all interconnected, in cascade, by subterranean rocky Conduits.

d/ Sudden changes in depth downstream (**Cistern n°9**) were conceived to accelerate the stream of Waters from the Cistern into Conduits that carried the Waters downstream to the outlet point where the Temple was situated.

e/ At this point in the development of Hydraulic Technology no system of decantation of the waters seemed to have been foreseen : This resulted in the periodically need to drain the Cisterns for cleaning and removal of silt built up over time.

f/ Concerning this Solomon period it is worth noting that the pulley has been invented by Archytas between 460 and 365 BEC, that is to say half a millennium after Solomon :

This incidental remark renders rather derisory the idea that the abundant Waters necessary for the Temple Rituals could have been drawn from Cisterns whose bases would have been situated twenty metres below the surface of the floor of the Temple...

In addition, these Waters drawn in this way by the hand of man and with the aid of recipients could, in no way, have been considered as Living Spring Waters, and, therefore ,not valid for the Ritual Supreme Purification of the Religious Officiants (cf. infra).

*The Temple of Solomon Could not Stand
On its Water Tower*

-B- During the Hasmonean period.

a/ The excavation of huge formless Caverns with integrated supporting pillars was abandoned.

b/ Instead, **Cistern n°7** (the 'Sea') is excavated in a form sufficiently narrow so as not to need any more mass rocky columns to support its heavy solid rock roof.

c/ The forms of the Cisterns tend towards geometric lines, and are now connected to each other by more or less rectilinear angles Conduits which replace the ancient sinuous curves of the Solomon underground Channels and Conduits.

d/ The problems of decantation seemed to have been discovered, or rather, some empirical attempts were made to solve this permanent problem :

e/ To this effect, the base of the Cistern was conceived with a deeper bottom than was necessary for the Flow of Waters downstream, so as to trap and deposit the silt whilst the cleared Waters could flow out at a higher level.

-B- During the Herodian period.

King Herod took advantage of the period from the demolition of the second Temple to the construction of the third Temple, to reorganise and improve the whole of the underground Water Supply System for the Sanctuary.

The influence of Roman technology and the most probable cooperation of Agrippa's Hydraulic Engineers permitted the complete redesign of the whole underground Hydraulic System.

Resuming and simplifying these vast Judaeo-Roman works under Herod :

a/ The building of rectilinear Aqueducts, called 'Upper Aqueduct' and designed to considerably increase and provide a lasting guaranty for the volume of Waters necessary for the functioning of the Temple.

b/ The reinforcement of the antique Etam Aqueduct (called also 'Lower' Aqueduct or Solomon Aqueduct).

c/ The construction of a new underground giant Cistern to the south, and downstream of the Haram (**Cistern n°11**).

The comparison between the approximate lines of the Hasmonean **Cistern n°7** and the strict geometric lines of the Herodian **Cistern n°11**, (cf. Map), the functions of both being identical,

*The Temple of Solomon Could not Stand
On its Water Tower*

shows clearly the evolution in the underground Hydraulic Construction Designs, Techniques and Technology.

In addition like **Cistern n°7**, **Cistern n°11** has a sunken base, a sump in which silt could be decanted and collected below the waters outlet downstream point.

d/ The construction, modification or modernisation of the Cisterns for collection of rain waters, on the north slopes of the Haram, including **Cisterns n°1, n°3, n°14, n°13, n°12 and n°37**. All these Cisterns were systematically connected by Conduits to the underground Network permitting all the waters collected to flow downstream.

Several of these Cisterns were compartmented and the depth of part of the Cisterns was modified in order to facilitate decantation in deeper water and to accelerate the flow of waters in a downstream direction.

This to say that the Jewish and Roman engineers tried and succeeded to marry two apparently opposing functions :

- Decantation by compartments amply attested by Archaeology in numerous Hydraulic Installations in the Roman Empire.
- Propulsion through impulsion by sudden increase in the depth of the Cistern, a function that seemed specific and in any case indispensable to Jewish Hydraulics, ever since the first creation of the Temple's Hydraulic System.

-- This functional contradiction renders sometimes interpretation of complex Installations difficult to apprehend, at times when certain descriptions of the small and medium sized Cisterns of the north of the Haram, which were made by the 19th century Archaeologists, do not provide sufficiently precise Data on this specific subject.

Effectively, let us recall, for these 19th century Archaeologists, the hypothetical problem, of the imperative Religious Circulation of the Waters beneath the Haram, seemed to them a very minor and secondary problem, because this Circulation of Waters could in no way appear to their eyes and minds, as an unavoidable Biblical Requirement.

Therefore, their meticulous observations, apparently inexplicable, were interpreted as a sort of side issue, or as the accessory and almost useless need to evacuate overflows from the Cisterns, although these discovered systems appeared to them as having been designed in a very complex, elaborate, strange, and incomprehensible way. --

e/ Construction of the **Cistern n°5**, in order to collect and permanently control the Flow downstream of rain waters collected upstream of the Haram :

*The Temple of Solomon Could not Stand
On its Water Tower*

This **Cistern n°5** was most probably equipped with the latest Roman Technological and Hydraulic Innovations, including a giant Drum with a vertical axle, as shall be seen infra. The form structure and technologically very complex layout of **Cistern n°5** confirms, by itself, the installation of an immense System for the Circulation and Propulsion of Waters that went far beyond the archaic, almost prehistoric, and static System for drawing Water that the 19th century archaeologists believed they were discovering and exploring.

f/ Installation of a modernised decantation system with the twin structured **Cisterns n°36 and n°6**.

g/ Installation of a specific Network of Conduits for Distribution and Control in a Roman designed geometric and rectangular grid that was positioned between the outlet of the **Etam Aqueduct**, the decantation **Cistern n°6**, the control **Cistern n°5** and the giant storage **Cisterns n°8 and n°7**.

h/ Increase in performance of **Cistern n°10** designed for the final Propulsion of the Waters downstream to the Temple, through the underground System of Conduits situated below the Triple Gate of the southern rampart of the antique Jewish Citadel (Haram) :

This increase in performances of this Propulsive **Cistern n°10** was obtained by the addition, to the ancient formless Cistern, of a long very rectilinear column of Water that was installed following the levels of the bedrock, just before exiting at the southern rampart of the Jewish Citadel (Haram) so that the Living Waters and the cleansing waters would gush out under the greatest possible pressure, downstream, onto the lost Platform of the Sanctuary.

12/ Before examining infra, in precise details, this vast underground Hydraulic Network, with all its interconnecting Cisterns, it can already be established in an irrefutable way, the following great Lines of **Evidence** :

- That the **fifty millions litres** of Waters, stored in the five giant Cisterns and satellite Cisterns situated in the depth of the rock beneath the antique Jewish Citadel (Haram) and downstream from the **Etam Aqueduct**, were constantly impregnated, validated and ritually sanctified by the Living Spring Waters carried by the same Etam Aqueduct from the **Solomon's Pools**, where **400 millions litres** of mixed Spring Waters and rain waters were constantly stored, and fed an uninterrupted Purifying Flow.

*The Temple of Solomon Could not Stand
On its Water Tower*

- In addition, these Waters religiously validated could only flow into the Mikvehs of the Temple, and in particular into the Brazen Sea and the Mikvehs of the High Priest, situated in the Sanctuary on the upper storey of the Parvah Chamber and on the upper storey of the Water Gate, **on the sole and unique condition that the Sanctuary would be positioned downstream** from this colossal underground Hydraulic Water Storage and Distribution System :

That is to say, topographically, downstream from the Triple Gate of the southern rampart of the nowadays Haram :

The ground under the Triple Gate is constituted by an impermeable rocky butte, within which all the Purifying Waters flowing to the Temple could transit before being gushed out onto the level of the Sanctuary.

And, in exactly the same way, the abundant quantities of washing waters for the evacuation of the blood and dejections, of the thousands and sometimes tens or even hundreds of thousands of daily sacrifices, could only flow out onto the surface of the Temple Court with sufficient pressure, on the absolute condition that the Temple would be situated downstream from this Hydraulic System, and, consequently, downstream from the Triple Gate of the southern rampart of the nowadays Haram.

Therefore the Temple *'washed by the waters spurting out from the lead pipes'* that Aristeeas had contemplated with admiration from the heights of the ramparts of the antique Jewish Citadel, stood downstream from the present Haram, and the Haram, at that time, was, in fact, the Jewish Fortress overlooking and protecting the lost Temple of the Jews.

13/ The quantities of Waters necessary for the Temple Rituals, including during the dry season, were such that the underground Hydraulic System had to be able to collect and store, during the rainy seasons, the greatest quantity of waters that flowed from the Summit of the Promontory of antique Jerusalem (Platform of the Dome of the Rock).

A large quantity of these rain waters, which flowed down from the Summit of the Promontory, streamed directly south, and were carried through a vast network of Channels that converged downstream, in the Haram's underground rock, to reach and to fill the Group of the **5 giant Cisterns n°7, n°8, n°9, n°10 and n°11**, as well as their smaller satellite Cisterns.

Because it was **only** in this Group of **5 giant Cisterns** that the rain waters, stored in the whole underground Hydraulic System of the Jewish Citadel (Haram), could be fecundated and validated for the Jewish Worship, which is to say sanctified by the Living Purifying Waters issued from the **Etam Springs**.

*The Temple of Solomon Could not Stand
On its Water Tower*

14/ But it is in this same perspective that the Jewish Hydraulic Engineers endeavoured to painstakingly collect, also, all rain waters that flowed to the north, west and east from the Summit of the Promontory and its surroundings, down the natural slopes fixed by the bedrock of antique Jerusalem.

To collect these rain waters that did not flow directly towards the **5 giant Cisterns** to the south, a **second group**, consisting of **two principal sets of Cisterns**, was disposed all around the Summit of the Promontory.

These rain waters collection Cisterns were installed to the north-north-west and to the north-north-east of the platform of the present Dome of the Rock :

But these Cisterns could only be excavated below the transversal rock depression which lays underground at the north of the Platform of the Dome of the Rock and which descended steeply forming the northern deep gully that delimited the ancient Jewish Citadel.

All the Cisterns, in these two rain waters groups of storing Cisterns, were also, progressively, connected to the whole of the general underground Hydraulic Network which was progressively built by the Jewish Engineers so that **all the waters collected or received could flow together, without exception, into the 5 fecundating giant Cisterns, situated downstream at the south of the Haram, and there-from they could finally flow further downstream onto the lost Temple Platform.**

*The Temple of Solomon Could not Stand
On its Water Tower*
