

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

VII

THE FUNCTIONING OF THE TEMPLE OF THE JEWS

THE RITES OF ANIMALS SACRIFICES

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VII

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The Rites of Animals Sacrifices

1/ The Concept of a Moral Contract between the Eternal and the Jewish people requiring unremitting religious worship to perpetuate this Covenant, generation after generation, established for the first time in antiquity a new ideological model that violently challenged the Pagan multi-Gods world as a scandalous revolution.

But the sacrifice of animals constituted a rite common to the majority of the Ancient World. And in a general manner all civilisations, religions and ideologies practised the bloody rite of sacrifice from their very origin, both as a mark of lofty submission to the violent, cruel and devouring order of the biosphere, and as a sign of recognition of man to nature, which enabled him to survive by eating its diverse creatures and creations.

2/ In resuming and by simplifying the ritual with its extremely complex rules, the Judaic sacrifice of animals in the Temple of Jerusalem was divided into two principal categories :

- *Complete sacrifices* whereby animals sacrificed were integrally offered to the Eternal and therefore entirely burnt on the Altar.
- Other extremely varied *Communion sacrifices* in which certain parts of the animals sacrificed were burnt in offering to the Eternal, whilst the other parts of the animals were destined as food for the Priests, for the families, or groups or individuals who had offered the sacrificed animal, either directly or by the intermediary of their leader or their king.

The sacrificial ritual is described, for instance, in *Leviticus Chapters 1 to 7*, commencing with Complete Sacrifices :

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-A- Complete Sacrifices :

Leviticus : Chapter 1: verses 1 - 9 :

Then the Lord called to Moses and spoke to him from the Tent of Meeting, saying : Speak to the sons of Israel and say to them :

'When any man of you brings an offering to the Lord, you shall bring your offering of animals from the herd or the flock.

If his offering is a burnt offering from the herd, he shall offer it, a male without defect; he shall offer it at the doorway of the Tent of Meeting, that he may be accepted before the Lord.

He shall lay his hand on the head of the burnt offering, that it may be accepted for him to make atonement on his behalf.

He shall slay the young bull before the Lord; and Aaron's sons, the Priests, shall offer up the blood and sprinkle the blood around on the altar that is at the doorway of the Tent of Meeting.

He shall then skin the burnt offering and cut it into its pieces. The sons of Aaron, the Priests, shall put fire on the altar and arrange wood on the fire.

Then Aaron's sons, the Priests, shall arrange the pieces, the head and the suet over the wood which is on the fire that is on the altar.

Its entrails, however, and its legs he shall wash with waters.

And the Priest shall offer up in smoke all of it on the altar for a burnt offering, an offering by fire of a soothing aroma to the Lord.

-B- Communion Sacrifices :

Concerning Communion Sacrifices the procedure is almost the same as for complete sacrifices, except that only parts of the sacrificed animal are entirely burnt in offering to the Eternal, the other parts were destined, as food, to the Priests, Levites and those who offered the sacrifice.

Leviticus : Chapter 3: verses 1 : 5 :

Now if his offering is a sacrifice of communion offerings, he is going to offer out of the herd, whether male or female, he shall offer it without defect before the Lord.

He shall lay his hand on the head of his offering and slay it at the doorway of the Tent of Meeting, and Aaron's sons, the Priests, shall sprinkle the blood around on the altar.

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From the sacrifice of the communion offerings he shall present as offering by fire to the Lord, the fat that covers the entrails, and the two kidneys with the fat that is on them, which is on the loins, and the lobe of the liver, which he shall remove with the kidneys.

Then Aaron's sons shall offer it up in smoke on the altar as the burnt offering, which is on the wood that is on the fire : it is an offering by fire of a soothing aroma to the Lord.

Thus the animals sacrificed were slaughtered in the Temple Court, and the sacrificial altar was in reality an altar for burning parts of the animal sacrificed.

The different operations of slaughtering, flaying, cutting up the fatty parts and offal, the washing of the viscera and feet, implied a great quantity of blood and animal dejections of all kinds. In addition not only were the animals slaughtered ritually by cutting their throats but they were also entirely emptied of their blood.

This Mosaic particularity came from a certain primitive fascination for blood, seen as an essential flux in all life, as being life itself.

This specific theme of blood appears in the Bible starting in Genesis, after the flood in which only Noah and his family were spared together with a pair of every kind of animal from the creation :

Genesis : Chapter 9: verses 1- 5 :

And God blessed Noah and his sons and said to them :

Be fruitful and multiply, and fill the earth.

The fear of you and the terror of you will be on every beast of the earth and on every bird of the sky; with everything that creeps on the ground, and all the fish of the sea, into your hand they are given.

Every moving thing that is alive shall be food for you :

I give all to you, as I gave the green plant.

Only you shall not eat flesh with its life, that is, its blood.

Surely I will require your lifeblood from every beast that would have killed a man I will require it. And in the same way from every man, from every man's brother I will require the lifeblood of the one who has killed.

Leviticus Chapter 17 verses 10 to 14:

And any man from the house of Israel, or from the aliens who sojourn among them, who eats any blood, I will set My face against that person who eats blood and will cut him off from among his people.

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For the life of the flesh is in the blood.

And I have given the blood of the sacrificed animals to you on the altar to make atonement for your souls : for it is the blood by reason of bearing life that makes atonement.

Therefore I said to the sons of Israel, 'No person among you may eat blood, nor may any alien who sojourns among you eat blood.

So when any man from the sons of Israel, or from the aliens who sojourn among them, in hunting catches a beast or a bird which may be eaten, he shall pour out its blood and cover it with earth.

For as for the life of all flesh, its blood is identified with its life.

Therefore I say to the sons of Israel, 'You are not to eat the blood of any flesh, for the life of all flesh is its blood...''

4/ The number of animals sacrificed in the Temple could be extremely high on certain occasions, in particular during the important annual Jewish feasts that brought together a great number of people and pilgrims from all of Israel and the Diaspora.

In fact all Jewish family heads considered it essential to be present at the Temple in Jerusalem to offer up a communion sacrifice, which sanctified the meat.

Those parts not burnt on the altar as offerings to the Eternal and not reserved for the High Priest, the Priests and the Levites, to be eaten at once or preserved, could then be taken away.

As to the Kings, dignitaries, and tribal or community chiefs, their glory was amplified when they were able to offer the greatest number of animals possible for sacrifice in the Temple.

On this subject the figures transmitted by the *Bible* are rather impressive.

For example, at the inauguration and consecration of the Temple, King Solomon and all the Israelites offered a very great number of animals for sacrifice.

The *Book of Kings* tells of the numbers offered by King Solomon alone.

These royal sacrifices resulted in great banquets that continued for seven days with sufficient food for all, without taking into account meat salted for preservation, normally prepared by the Priests and the Levites to constitute food reserves.

1 Kings : Chapter 8 : verses 62 - 65

Now the king and all Israel with him offered sacrifices before the Lord.

Solomon offered for the sacrifice of communion offerings, which he offered to the Lord, 22,000 oxen and 120,000 sheep :

So the king and all the sons of Israel dedicated the House of the Lord.

On the same day the king consecrated the middle of the court that was before

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the house of the Lord, because there he offered the burnt offering and the grain offering and the fat of the peace offerings ; for the bronze altar that was before the Lord was too small to hold the burnt offering and the grain offering and the fat of the peace offerings.

So Solomon observed the feast at that time, and all Israel with him, a great assembly from the entrance of Lebo-Hamath in the north, to the brook of Egypt in the south : they all gather before the Lord, for seven days and seven more days...

A passage in *Chronicles* also provides some documentary details on the procedures during these grand celebrations in the Sanctuary and gives an idea of their atmosphere.

It concerns the ceremony of the purification of the Temple by King Ezekias, son and successor of King Ahaz, who during his reign by political opportunism had given support to the Syrian worship of idols.

The cult in the Temple having therefore been interrupted, King Ezechias decided to restore the Sanctuary worship in its original integrity :

2 Chronicles : Chapter 29: verses 31 - 35 :

Then Hezekiah said :

"Now that you have consecrated yourselves to the Lord, come near and bring sacrifices and thank offerings to the House of the Lord."

And the assembly brought sacrifices and offerings of thanks, and all those who were willing brought burnt offerings (complete sacrifices).

The number of the burnt offerings which the assembly brought was 70 bulls, 100 rams, and 200 lambs; all these were for a burnt offering to the Lord. The other offerings were 600 bulls and 3,000 sheep and goats.

But the Priests were too few, so that they were unable to skin all the burnt offerings.

Therefore their brothers the Levites helped them while waiting for the other Priests to be purified (by immersion in the living waters).

And the Levites were even more conscientious to consecrate themselves than the Priests. There were also many burnt offerings with the fat of the peace offerings and with the libations for the burnt offerings.

Thus the service of the House of the Lord was established again.

As to Flavius Josephus he calculated the number of Jews that had been trapped by the Roman armies of Titus during the siege of Jerusalem in 70 :

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In his calculation Josephus referred to figures given by the Governor of Syria to the Emperor Nero :

Flavius Josephus : Wars of the Jews : Book VI : Chapter IX :

And that this city (Jerusalem) could contain so many people it is manifest by the census which was taken by the Governor Cestius :

This governor being desirous of informing Nero of the power of the city, who otherwise was disposed to condemn that nation, entreated the Priests, if the thing were possible, to take the number of their whole multitude :

So these Priests, upon the coming of their feast which is called the Passover (Easter), when they slay their sacrifices in the Temple, from the ninth hour to the eleventh, took the census of the population in Jerusalem in the following way :

As every company or family of not less than ten, and often twenty persons, profited from each sacrifice, by sharing the meat of the sacrificed animal, so the Priests found the number of sacrifices was **255.600** :

which upon the allowance of no more than ten that feast together, amounts to the figure of **2.556.000 Jews**.

(And this figure can easily be rounded up to an estimation of 2.700.00)

Thus, according to these figures given by Josephus **255.600 animals** were sacrificed in the Court of the Altar in the Temple for the Passover.

5/ This Court of the Priests was thus transformed into a huge slaughter house and butchery together with specialised functional areas near to the Altar of Burning, for the following specific tasks :

- Areas for slaughtering the animals, cutting their throats and bleeding them ;
- Tables for flaying and removing the skins of the animals ;
- Tables for butchering the carcasses according to the Mosaic ritual for distribution of the parts ;
- An area for eviscerating and rinsing the entrails as well as for washing the animals' hooves.

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The *Tractate Middoth* indicates most of these areas :

Mishnah : Order Kodashim : Tractate Middoth :

3/5 :

- A- To the north of the Altar were 6 rows of 4 rings .
- B- Some said 4 rows of 6 rings.
- C- It was there they slaughtered the animals.
- D- The butchery was to the north of the Altar :
- E- There were eight columns with square boards in cedar wood at the top to which were fixed iron hooks.
- F- These hooks were arranged in three rows,
- G- on which the animals were hung after slaughter (and bled).
- H- The Priests flayed them on marble tables.

The *Tractate Middoth* neither mentions the area for the preparation of the offal, liver and kidneys, nor the areas for removing and cleaning the viscera.

However, by cross checking the whole of the rabbinic literature it can be supposed that the rinsing chamber next to this abattoir-butchery in the Court of the Priests was used for certain of these tasks.

6/ The slaughtering, complete bleeding, flaying, butchering, removal and washing of the viscera of thousands of animals, even hundreds of thousands of animals, accumulated immense quantities of waste in the Court of the Priests, not only the blood of the sacrificial victims, but also their urine and dejections of all kinds.

This means that the Court of the Priests was transformed into a vast, slimy, bloody cloaca that could have quickly become an evil smelling lake if it had not been washed and cleaned immediately and regularly.

These problems are echoed in rabbinic literature concerning the tasks of cleaning and washing the floor of the Court during the Easter celebrations in case this celebration day fell on the Day of the Sabbath (a Saturday) when a very great number of animals were sacrificed. In effect, certain very rigid Pharisees recalled that all work was totally forbidden on the Sabbath. Now if the slaughter, bleeding, flaying, butchering together with the removal and cleaning of the viscera was part of the rituals explicitly prescribed in the *Torah* and did not therefore constitute forbidden 'work', the Pharisees however estimated that the evacuation of blood and detritus as well as the washing and cleaning of the floor of the Court constituted extra-ritual labour.

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Thus according to the Pharisees these tasks were strictly forbidden when the sacrifices of the Passover fell on the Day of the Sabbath :

Talmud of Jerusalem : Order Moed : Tractate Pesahim : IV :

Mishnah 5 :

The sacrifices of the Pascal Lamb took place in three steps as indicated in *Exodus Chapter 12 verse 6 : Together the Community of Israel shall offer the sacrificial Pascal lamb.*

This represents 3 terms that are Together/Community/ Israel.

To slaughter the animals brought by the first series of Israelites (who came to offer lambs for sacrifice) they were brought into the Court (of the Priests) all together, and the doors were closed as soon as the Court was full.

The Priests sounded the trumpet, a short note, then again another.

The Priests stood in distinct lines : The Priests in one line bore silver basins, the Priests in the other bore golden basins. These lines did not mix together.

The basins were spherical with no flat bottoms so that they could not be placed on the ground : for it was necessary to prevent the blood from coagulating because it would have prevented the ritual sprinkling of the Altar (with blood drops).

Mishnah 6:

The ceremonial observed for the sacrifice of the Pascal Lamb will be the same if it falls on the Sabbath, except for the question of washing and cleaning the Court (inundated with blood and dejections) because this work is forbidden on that day.

However, the Priests would still proceed to this cleansing, in spite of the definite opinion of the Sages (the Pharisees) on this question.

Gemara :

Rabbi Jonathan explains why the Sages disapproved of this washing and cleaning of the floor of the Court (on the Sabbath and why they opposed it) : According to the Sages it was to avoid transgressing the Rules of Rest on the day of the Sabbath in the Temple more than elsewhere, because only the rules of the rituals were authorised in the Temple.

That is why on that day, in order to avoid the Priests being up to their knees in blood (and waste), trestles were installed upon which the Priests could stand.

Paradoxically, these same Pharisees, who opposed the cleaning of the Court on the Sabbath, on the contrary constantly "overbid" by vehemently and obstinately insisting that all the

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devotional objects used in the Temple be constantly purified by complete immersion in living spring waters.

In the *Tractate Haghiga* is found an example of this purifying zealotness of the Pharisees that in fact constituted means of pressure in order to affirm or increase their authority over the hereditary Priests and over the Sadduceans :

Talmud of Jerusalem : Order Moed ; Tractate Haghiga ; III :

Mishnah 8 :

How was the Court of the Temple purified ?

All the utensils in the Temple were passed into the legal Mikveh (supplied with living spring waters). But the Priests were warned to above all avoid touching the Sacred Table, or the Menorah (Chandelier), so as to avoid rendering them impure.

Of all the other utensils in the Temple, there were two or three of each so that once those used became impure they could be immediately replaced.

All the utensils in the Temple (besides the seven branched Menorah and the sacred Table) had to be washed by totally immersing them in the Mikveh (supplied with living spring waters) with the exception of the Golden Altar (inside the Holy Place) and the Copper Altar which were considered as belonging to the sacred ground itself, inside the Temple.

According to Rabbi Eliezer, other Sages declared this exception was due to the fact that the altars were covered with metal (which would have protected them against impurity).

After a rabbinic discussion on the possible need to even submit the sacred table to a purifying bath by immersion, the Gemara recounts an ancient anecdote concerning the purification that had been made by the Pharisees of the sacred Menorah, the seven branched chandelier :

One day as the Menorah was forced into having a purifying bath by immersion (in living spring waters) the Sadduceans mocked the Pharisees by saying :

'Look at the Pharisees ! Soon they will force the Sun itself into having a purifying bath by immersion in the Mikveh of the Temple !'

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VIII

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EXTRA-RABBINICAL EVIDENCE ON THE SUPPLY OF LIVING PURIFYING SPRING WATERS AND OF WATERS UNDER PRESSURE FOR WASHING AND CLEANSING THE TEMPLE

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VIII

Extra-Rabbinical Evidence on the Supply of Living Purifying Spring Waters and Waters under Pressure for Washing and Cleansing the Temple

1/ The hydraulic system for the supply by gravitational force of living spring waters for purification and of waters under pressure for cleansing the Temple of Jerusalem seems to have been considered in a manner of speaking as a kind of 'national defence secret' both by the ancient Jewish leaders and the sacerdotal and rabbinic authorities. Moreover, in a general manner it can be remarked that throughout the history of civilisations, religious and cultural communities have not shown any great interest over the centuries in the study and knowledge of their hydraulic systems for supplying waters or for the evacuation of waste waters.

In any case in the Bible as in the Rabbinic literature, there are just a few brief allusions to the huge hydraulic system that lay beneath the Haram underground rock.

For instance it is symptomatic that an author as prolific and proud of Jewish achievements as Flavius Josephus had not mentioned a word concerning this monumental hydraulic network carefully built into the bedrock upstream of the Temple, designed to supply continuously and under all circumstances the volume of living waters with a sufficient head of pressure necessary for the all the rituals of the Temple and its cleansing.

Flavius Josephus could be possibly attributed, as with the first Tannaite Rabbis, as having the prudence of wanting to keep the secret of a system which if not destroyed could in the future facilitate the hopes for restoration of the Temple and worship therein.

2/ It is probably for these different reasons that a sole and unique description exists, with a few very rational details concerning the Temple's huge hydraulic system : this description appears in the singular work by a Hellenistic Jew of Alexandria, Aristeas, or pseudo-Aristeas, who wrote between the third and first century BEC, the exact date of the text being difficult to ascertain with exactitude.

This work is commonly called *Letter of Aristeas to Philocrates*, and according to Eusebe of Caesarea its title seemed to have been : *On the Translation of Jewish Law*.

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The object of this work was to describe in an epistolary style, the genesis of the *Septuagint*, that is to say the manner in which the Hebraic Bible had been translated into Greek, by 72 (or 70) bilingual Jewish scholars at the time of the first two Lagides Kings of Egypt, Ptolemy Soter (360-282 BC) and his son Ptolemy Philadelphus (308-246 BC), successors to Alexander the Great in that region of the world.

Ptolemy Soter had founded the Great Library of Alexandria, where this Hellenistic King had wanted to gather all existing written works. In this way the Library continued to build its collections under the different Ptolemies, accumulating up to 500,000 volumes (rolls or compendiums), which were written or translated into Greek, and the annexe of the Library in the Serapeum accumulated 50,000 volumes.

According to Aristeas, Demetrios of Phalera, the founder of the library, had informed Ptolemy Philadelphus that the collection of the Great Library lacked the Law of the Jews. Ptolemy Philadelphus therefore decided to send an ambassador to the High Priest in Jerusalem, Eleazar, to obtain copies of these works, together with bilingual specialists of the Law capable of translating the Hebraic Bible into Greek.

According to Aristeas story probably fictional, Aristeas himself would have been part of this Egyptian delegation and would have had the privilege of visiting Jerusalem as a distinguished guest, thus giving him the possibility to prepare a particularly well documented description of the Temple site.

The mission returned to Alexandria with the texts of the *Torah (Pentateuch)* and 72 specialised translators of the Law : They were received by Ptolemy with the greatest of honours and in 72 days completed in Greek a very precise, faithful and particularly inspired translation of the sacred Jewish texts in Alexandria.

This translation was called the *Septuagint* after rounding off the number of translators.

It was to have an important future as it served as the key reference for the Old Testament during the first centuries of Christianity when literate Christians could read Greek but not Hebrew : all the more so as added to it were the translations of *Prophetic Writings* and *Other Writings*.

It is due to its utility for Christianity development that this story of Aristeas endowing such sacred significance to the *Septuagint*, has been preserved and transmitted down to us.

3/ It is difficult to evaluate with precision between the authentic history and fiction in the *Letter of Aristeas to Philocrates*. Certain anachronisms on occasions indicate doubts as to its full authenticity and it even seems rather possible that the person of Aristeas had been invented to serve as living witness to the origin of the *Septuagint*.

However, this account seems to contain authentic historic elements :

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For example concerning the description of Jerusalem, of its Temple and Citadel, it appears to be quite clear that either Aristeas had really been part of the delegation sent by the Ptolemy to the High Priest Eleazar, or, more probably, that the person called Aristeas had visited Jerusalem at the time of a great Jewish religious feast, or, at the least, that Aristeas had recorded a particularly well documented account of a Jew from Alexandria who had been part of this pilgrimage to Jerusalem.

On this point it is worth noting that during moments of peace a great number of Jews from the Mediterranean Diaspora that belonged to the well off classes, held dear the idea of making the pilgrimage to Jerusalem each time it was possible during one of its great annual religious feasts.

4/ The passage of the Book of Aristeas which specifically describes the supply of living waters to the Temple of Jerusalem has come down to the present in two principal forms :

- Manuscripts of the book itself ;
- and Manuscripts of the extract that Eusebes of Caesarea had recopied, integrating it into his work titled *The Evangelical Preparation of the Gospel*, which presented Jewish history and its Christological annunciation.

Below is a brief synthesis of the different manuscripts of these two series, so the different details put together describe in the best possible manner, the functionalities of the hydraulic system that had been built to provide a continuous supply of living purifying and cleansing waters to the Temple of Jerusalem.

Here is the description of the site of the Temple of Jerusalem given by Aristeas, which seems very probably to be the second Temple of the Hasmoneans, though it cannot be excluded that it is in fact the description of the third Temple of Herod.

(This because of some similitude that exists with the descriptions of the Temple of Herod and the Citadel that overlooks it, given by Flavius Josephus.)

Aristeas : Letter from Aristeas to Philocrates :

100 :

But in order that we might gain complete information, we ascended to the summit of the neighbouring citadel and looked around us.

The citadel is situated in a very lofty spot, and is fortified with many towers, which have been built up to the very top of immense stones, with the object, as we were informed, of guarding the Temple precincts, so that if there were an attack, or an insurrection or an onslaught of the enemy, no one would be able to force an entrance within the walls that surround the Temple.

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On the towers of the citadel engines of war were placed and different kinds of machines, and the position was much higher than the courts of the Temple. The towers were guarded by most trusty men who had given the utmost proof of their loyalty to their country. These men were never allowed to leave the citadel, except on feast days and then only in detachments, nor did they permit any stranger to enter it. They were also very careful when any command came from the High Priest to admit any visitors to inspect the place, as our own experience taught us : They were very reluctant to admit us - though we were but two unarmed men -to view the offering of the sacrifices. And they asserted that they were bound by an oath when the trust was committed to them, for they had all sworn and were bound to carry out the oath sacredly to the letter, that though they were five hundreds in number they would not permit more than five men to enter at one time.

For the Citadel is the special protection of the Temple and its founders had fortified it so strongly that it might efficiently and completely protect the Temple.

Letter from Aristeeas : 88 forward: (combined with)

Eusebes of Caesarea :The Evangelical Preparation of the Gospel : 38 forward :

The Temple faces the east and its back is toward the west.

The whole of the floor is paved with stones and slopes down to the appointed places, in such a way that waters may be conveyed to wash away the blood from the sacrifices, for many thousand beasts are sacrificed there on the feast days.

And there is an inexhaustible supply of waters, because an abundant natural spring gushes forth from within the Temple area.

There are moreover wonderful and indescribable cisterns underground, as they pointed out to me, at a distance of five furlongs (about 1 kilometre) all round the site of the Temple, and each of them has countless pipes so that the different running streams converge together. And all these pipes are fastened with lead at the bottom and at the sidewalls, and over them a great quantity of plaster has been spread, and every part of the work has been most carefully carried out.

There are many channels which lead to openings for the running waters at the base of the court of the Priests which are invisible to all except to those who are engaged in the ministration.

This setting of channels fastened with lead and cemented in a remarkable way has been conceived so that jets of waters spurt out on the pavement and even onto the basis of the walls (of the Court of the Priests) :

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So that all the blood of the sacrifices which accumulates in great quantities is washed away in the twinkling of an eye.

As I was very interested in this installation of the reservoirs, I will now tell you (Philocrates) how it was confirmed :

They led me more than four furlongs (about 800 metres) outside the city and bade me peer down towards a certain spot and listen to the noise that was made by the meeting of the waters, so that the considerable size of the reservoirs became manifest to me, as has already been pointed out.

This reference text entails several interesting points relative to this present study :

- **A-** The cleaning and evacuation of the large quantities blood accumulated on the floor in the Court of the Priests was operated by a pressurised waters distribution system (mechanical karcher).
- **B-** The supply of waters was abundant and extremely efficient.
- **C-** The Temple's waters supply system remained a well kept secret, even with regard to an Alexandrian Jew, and official visitor.

Actually :

a/ Aristéas (or Pseudo-Aristéas) was led to believe that there was an abundant source of waters in the underground of the Sanctuary itself, which probably explains, according to him, the possibility of accomplishing the diverse rituals of purification with living spring waters, as well as the availability of an endless quantity of waters for cleansing purposes.

b/ Aristéas (or Pseudo-Aristéas) was brought 800 metres from the city ostensibly so that, by the sound alone, he could realise the extent of the reservoirs, which were in reality situated under his feet, beneath the Citadel that he was visiting and could be directly accessed by those responsible for their maintenance.

These reservoirs were in fact protected by the Citadel as was the Temple.

5/ If Aristéas transmitted a faithful and realistic description of the hydraulic system with its limitless flow of waters under pressure for washing the Court of the Temple, the most complete description of the running spring waters system that supplied the purification mikveh of the High Priest with living waters is paradoxically that of the Hellenistic Jewish poet, Philo the Ancient, probably in the third century BEC :

The few verses in hexameter which have been preserved and transmitted by Eusebes of Caesarea altogether convey a carnal sensation of the antique purification baths and render a

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vision that is topographically precise of the hydrological network used for the vivifying flow destined to the cult in the Temple, the whole of these poetic perceptions merging into a kind of mystical exaltation :

Eusebius of Caesarea, *The Evangelical Preparation for the Gospel : Book IX :*
From Philo (the ancient) about the waters of Jerusalem ; cited by Polyhistor :
Chapter 37 ;

1/

According to Philo in his *Poem on Jerusalem*, there is a spring that dried up in winter but flowed abundantly in summer.

In the first book Philo writes :

*'Swimming in the upper reservoir I saw another curiosity, even more surprising:
The connecting basins fill with their waters, for the bath of the High Priest, the bed of
the spring that spread... and further...'*

2/

On the filling (of the reservoirs and of the basin of the 'spring') and on the rise of the waters Philo wrote a little further :

*'The brilliant and joyous streams that flow out mixing rain and snow,
Swirl under the mountainous towers (of Jerusalem),
And further, the plain dry and dusty,
Highlight before astonished eyes
The prodigious force acquired by the spring...'* and further...

3/

Then again on the spring of the High Priest and the aqueduct, Philo gives this description :

'A steep slope, the canals propel the waters under the ground to the pipes...'

The restitution of the whole poem of Philo, which Eusebius of Caesarea had read, is quite difficult to understand with these very few fragments and brief presentations and transitions given by him.

It seems, however, possible to reconstitute some of the structural data of the hydraulic system such as seen and described by the poet swimmer, and of which only a few fragments have been transmitted to us by Eusebius ;

-A- It seems that Philo had first followed the stream of waters from the aqueduct that supplied the Sanctuary and that the poet had then successively swum in the cascading reservoirs that supplied the mikveh of the High Priest.

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-B- The waters coming from the Etam sources, quick flowing and abundant, also collected rain waters and waters from melted snows that were carried to the Sanctuary by the aqueduct that crossed an arid landscape.

-C- The aqueduct was suitably steeply inclined, and well laid out underground channels delivered the waters to the Sanctuary where they gushed out with considerable pressure.

-D- The basin-mikveh of the High Priest was, as it appears also with Aristeas, reputed as the basin of a real spring, which constituted from the religious point of view the highest degree of purification for ritual purification waters.

6/ This essential notion of an abundant spring in the heart of the Sanctuary itself must have been well anchored with a widespread reputation, since the historian Tacitus (57-117 EC) expressly made reference to it when he described the Temple of Jerusalem as it appeared before its destruction by Titus in 70 EC.

Tacitus : *Histories* : Book V : Chapter 12 :

The Temple was like a citadel and had its own ramparts, which had been even more laboriously and skilfully constructed than the other ramparts of the city.

The porticoes around it constituted in themselves an excellent defensive position (by heightening the wall).

To these advantages must be added a **spring of never-failing waters**, underground chambers cut into the living rock, and **tanks and cisterns for the storage of rain waters**.

The builders of the Temple had foreseen only too well that the strange practices of the Jews would lead to continual fighting. Hence everything was available for a siege, however long.

7/ It can even be suggested that the association of the Temple with its purifying Source was one of the major motivations of ancient Jewish thought, of which there are several illustrations in the *Bible*, such as for example that of Ezekiel, exiled in Babylon and who dreamed of the glorious and eschatological resurrection of the Temple destroyed by Nebuchadnezzar in 587 BEC.

In this evocation, where "the man" in the vision brings Ezekiel to visit the future Temple, it was natural that waters gushed from the spring situated at the south-east mouth of the channel, which according to the *Tractate Middoth* had run along the south wall **inside** of the Temple carrying the purifying waters to the Court of the Priests :

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Ezekiel : Chapter 47: verses1- 5

Afterwards the man brought me again unto the door of the House;
And behold :
Waters issued out from under the threshold of the House eastward:
For the forefront of the House [stood toward] the east ;
And the waters came from under the right side of the house,
And then flowed at the south [side] of the altar.
Then the man brought me out of the gate northward,
And led me around the surrounding wall
On to the eastern gate.
And, behold, there ran out waters on the right side.
The man that had the line in his hand went forth eastward,
He measured a thousand cubits (500 metres) in this direction :
Then the man made me cross the waters :
The waters were to my ankles.
Again the man measured a thousand cubits :
The waters were now to my knees.
Again the man measured a thousand,
And brought me through the waters again :
The waters were to my loins.
Afterwards the man measured for the last time :
And it was now a deep torrent stream
A river that could be passed over only by swimming.

This primordial spring on the threshold of the Temple was thus transformed from a ritual principle to a principle of life for the entire territory of new Israel.

And before Ezekiel, the Prophet Jeremiah, who had the misfortune of being locked in the cistern by his enemies, had already preached the absolute and divine pre-eminence of living waters over the still waters stored in the cisterns, and had also glorified the incarnation of the founding source in the Temple of Jerusalem :

Jeremiah :

Chapter 2 : verse 13 :

(Before the destruction of the First Temple by Nebuchadnezzar)
The Lord declared :
For My people have committed two evils :

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They have forsaken Me,
The Fountain of Living Waters,
To hew for themselves cisterns,
Cisterns which fissure
and that can retain no waters.
Chapter 17 : verses 12 -13 :
A glorious and noble throne
High on the world from the beginning
Is the place of our Sanctuary.
O Lord, the Hope of Israel,
All who forsake You will be put to shame.
Those who turn away on earth
Will be written down in the dust,
Because they have forsaken You the Eternal Lord
The Source of Living Waters.

In other words, and as will be seen below, the **Channel inside the Temple** (which most probably had been installed, since the beginning, in the first Temple) as described in the *Tractate Middoth 4/7* and *3/6*, and as strongly assimilated to the very Source of the Temple, supplied, amongst others, the bronze purification bath of the Priests, and not only did this channel ensure, in a certain manner of speaking, the uninterrupted flow of the original pulsation of waters from their origins at the Etam Spring, but in addition the purifying waters were again sanctified and blessed by their passage through the House of the Eternal.

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IX

THE PRINCIPLES OF THE WATER CONVEYANCE SYSTEM OF THE TEMPLE OF JERUSALEM

THE FIRST ARCHAEOLOGICAL EXPLORATIONS AND SURVEYS IN THE SUBTERRANEAN BEDROCK OF THE HARAM

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IX

THE PRINCIPLES OF THE WATER CONVEYANCE SYSTEM OF THE TEMPLE OF JERUSALEM

The First Archaeological Explorations and Surveys in the Subterranean Bedrock of the Haram

1/ The Moral finality of worship in the Temple of Jerusalem reposed on the community of Israel's constant necessity of purification so that they were in constant compliance with the fundamental contract of the Ark of the Covenant, first protected and then perpetuated in the Holy of Holies.

The Purification, by which the High Priest was immersed in the waters gushing from a spring, represented the quintessence and supreme affirmation of the Highest Moral purity and as a consequence its obligation was extended to the whole hydraulic system of the Temple.

Thus the inventors and first builders of the gigantic installation for the Sanctuary of the Jews were affronted with several simultaneous problems, including those of religious, theological, climatic and geological orders, to which were added all the problems related to the technical conception of a hydraulic system.

These different problems and the principal means of their solutions were studied as follows:

-A- It was imperative that the whole concept of the Sanctuary's hydraulic system was organised around a continuous supply of living spring waters.

The only springs situated at an altitude greater than that of Jerusalem, and sufficiently abundant and unvarying in volume, were those that could be tapped at the watershed between Bethlehem and Hebron.

All the waters of those springs were brought together and stored in the region around Etam situated at approximately **780-790 metres** above sea level.

- The average elevation of the cisterns situated in the rocky underground of the Haram are at approximately **720-730 meters** above sea level. -

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-B- All of the spring waters could be carried by gravitation to the Sanctuary of Jerusalem through the construction of aqueducts that included channels exclusively cut in the rock, tunnels cut into the rock, or bridges of stones cemented crossing valleys and ravines.

-C- This elemental and theological supply of spring waters, in spite of the abundant flow of waters in certain months, would have revealed insufficient to satisfy the immense and constant needs of the Temple in purifying and cleansing waters with an adequate head of pressure throughout the year because of the alternating periods of rain and possible melting snow with long and very dry periods.

-D- As a consequence to make up for the climatic deficiencies, cistern-reservoirs that could collect and store large quantities of rain waters were cut into the layer of bedrock upstream of the site where the Temple stood. The whole of these subterranean cisterns in the bedrock that lay beneath the Haram could store up to fifty million litres of waters.

-E- But when the rain ceased to fall, this stored waters, coming from rainwater streams, immediately ceased to be waters of superior degree as to their potential power of purification, and further all these waters were held in static cistern-reservoirs and could have been declared totally impure by the least introduction of impurities, which was almost inevitable where a climate of theological emulation and permanent overbidding reigned concerning the different possible interpretations of the *Torah*.

-F- It was under these conditions and in order to be in perfect compliance with the prescriptions of the *Torah* that the inventors and builders of the hydraulic system were obliged to conceive a structure :

a/ that would ensure the continuous flow of the waters stored in the underground cisterns, in successive cascades,

b/ and above all that would confer on every drop of the waters the supreme degree of purification by constantly fecundating all of them with the perpetual flow of living waters originating from the Etam Spring.

-G- From the technological point of view this vast system for the supply of waters to the Temple was governed by two essential ancient hydraulic principles :

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From the most ancient times these two essential principles of conveyance of waters had been discovered and applied in an empirical fashion by almost all the first civilisations :

These elementary principles that always guided the first builders of hydraulic systems in antiquity were :

- a/ The impermeability of the container was indispensable for the circulation and storage of waters.

In this respect the bed rock of Judea and Jerusalem was a very solid guaranty in space and time up to the present day when its characteristic still bear witness to these qualities.

- b/ The greatest meticulous attention was given to the slope of the waters course where the difference of elevation was the sole means available of ensuring the circulation of waters by simple gravitation.

-H- The specific conditions related to the supply of waters for the Sanctuary in Jerusalem were in addition required to conform with specific regulations related to the constraints of religious prescriptions.

The symbiosis of these early antique Hydraulic principles and of the Judaic prescriptions resulted in a totally original **Hydrodynamic Concept** :

This system invented was designed to confer on **all the waters**, which were stored in the rocky underground of the citadel (nowadays Haram) which overlooked and protected the Temple, the **supreme qualifications and purifying virtues of the living waters from the Etam Spring**.

It is from this indisputable principle that a precise lay out of the different elevations above sea-level resulted, both for the aqueducts and for the dispositions of the cisterns in the underground rock of the Jewish citadel (the Haram) situated upstream of the Temple as well as for the different conduits in which the waters circulated.

The vast underground system therefore ensured a continuous fecundation of all the waters that circulated in the system bringing them together in an unending symbiosis within the same homogeneous and purifying flow.

In a certain fashion, other than the knowledge of hydraulic technology shared with other ancient civilisations, a specifically Judaic vigilance was applied down to the last detail by the Jewish inventors and engineers for the design and construction of the Temple's hydraulic system, in exactly the same way as the architectural design of the Temple and the organisation of its rituals had been determined, in scrupulous compliance with the obligations laid down in the *Torah*.

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2/ Without the unexpected epic of the exploration by the archaeologists of the 19th century no scientific knowledge as to the organisation of this unique hydraulic system would exist, that is to say, a system that was built by the founders of the Jewish Sanctuary, and was maintained and constantly improved through the ages up until the destruction and loss of the Temple.

By a kind of archaeological miracle this system built into the bedrock of the Haram is the only remaining and relatively intact part of the Jewish Sanctuary that has otherwise totally disintegrated and evaporated in the mists of time.

Until the 19th century though it had been relatively feasible for Westerners to explore and study, with the necessary approval, the surrounding areas of Jerusalem and the aqueducts that carried waters to the presumed site of the Temple, the exploration of the Haram underground itself was totally impossible as the Sanctuary of the Muslims was forbidden to infidels, and enforced by on the spot conversion to Islam or by instant death for non-Muslims who contravened the edict.

Further the Haram was considered as sacred by the Muslims and besides the contemplative and admiring attitude of the traditional pious pilgrims, all systematic exploration or excavations of the Haram's underground even by Muslims themselves would have been immediately interpreted as a sacrilege by the religious authorities.

In effect beliefs solidly anchored by centuries of consolidation had established the sacred rock of the Umayyads, as the spot where Mohammed rose up to heaven to speak with the Jewish Prophets of past ages and from where Mohammed on his death had ascended into heaven.

Further popular legends recounted the underground was haunted by djinns, good or evil genies, but who at least had been the first creatures outside of Mecca to have recognised Mohammed as the Prophet and had converted to Islam.

Cistern-reservoir n°8, the 'Sea' or the 'Great Sea' of Solomon was the particular subject of many varied and inventive Muslim legends.

However, some realistic accounts by Muslim pilgrims over the centuries up until the 19th century described the underground cisterns of the Haram.

These accounts do not constitute by any means scientific descriptions but certain evocations are sufficiently documented and prefigure the detailed studies and measurements that archaeologists were to make in the 19th century.

Amongst these different Muslim authors, Muqadasi can be cited (circa 935), Nasir-i-Khuraw (circa 1047), Al-Umari (circa 1347), Suyuti (circa 1470) and Mujir-al-Din (circa 1496).

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Though the description of the cisterns in these Muslim texts are more often simple enumerations with a few laconic indications, the text of Naisr-i-Khusraw, in particular, has the interest of being a little more detailed as the following extract shows :

The Travels of Nasir-i-Khusraw to Jerusalem : 39 : Extract :

In the south wall (of the Haram Area) is a gate (double gate) leading down to the places for the ablution, where there are running waters at the basis of the southern rampart, below Al-Aqsa mosque.

When a person has need to make the ablution (before prayer), he goes down to this place and accomplishes what is prescribed : for had the place (of ablution in running waters) been set outside of the walls of the Haram, by reason of the great size of the Haram Area, no one could have returned in time, for the prayer. (in those times the area beneath the Al Aqsa mosque, at the external basis of the rampart, was part of the Haram.)

The roofs of all the buildings in the Haram Area are covered with lead. Below the ground-level are numerous tanks and waters-cisterns hewn out of the rock, for the Noble Sanctuary rests everywhere on a foundation of live rock.

There are so many of these cisterns that, however much rain falls, no waters flow away to waste, but is all caught in the tanks, whence the people come to draw it. They have constructed leaden conduits for carrying down the raining waters from the surface, and the rock cisterns lie below these, with covered passages leading down therein, through which the conduits pass to the tanks ; whereby any loss of waters is saved, and impurities are kept there from.

At a distance of three leagues from the Holy City I saw a great water-tank (Solomon's Pools, near Etam which, in reality are three superposed reserves) where into pour all the streams that flow down from the hills. From thence they have brought an aqueduct that comes out into the Noble Sanctuary.

Of all parts of the Holy City this is where waters are most plentiful. ...

3/ The first and unique opportunity for Western scholars and specialists to study the rocky underground of the Haram occurred in the 19th century.

This unique occasion in the history of Jerusalem was the conjunction of several factors: (reminder)

-A- There was the growth in power of the western democratic nations issued from Judeo-Christianity with their concomitant technological and scientific progress.

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-B- The parallel decline of the Ottoman Empire, founded on Islam, which had driven its voracity to conquest but had paralysed its social evolution, whilst this same evolution appeared progressively as the necessary condition for all real dynamic progress in other regions of the world.

-C- An increasing call by the Muslim authorities for Western technology to solve their problems of civilisation and demographic growth, which had become more and more acute in their lands due to the incapacity and blockage of the Muslim society.

-D- In the case of Jerusalem, where since the most ancient times the supply of waters had never constituted a real problem, the hydraulic and sanitary conditions under the Muslim administration had reached such a disastrous state that the city authorities were forced to appeal to Western experts.

-E- It was through this breach that the gates of the Haram opened to the officers of the British Royal Engineers. These officers other than their mission as specialists in engineering discretely dissimulated another objective : They were the representatives of the "*Palestine Exploration Fund*" sponsored by Queen Victoria, and dedicated to a profound exploration of the Holy Land.

-F- It is with this double objective that the British officers undertook their task designed to be as extensive as possible, that of the *Palestine Ordnance Survey*, which is to say a detailed topographical and geographical survey of the whole of the territory of Palestine and in which Jerusalem and the principal holy sites were studied from their historical, religious and archaeological aspects.

4/ More specifically and concerning this present study four principal persons collected and transmitted the unique detailed information and data without which it would have been impossible to locate the real site of the Temple of Solomon.

These four persons included :

- three officers of the Royal Engineers assigned to the *Palestine Exploration Fund* : Charles Wilson, Charles Warren and Claude Reignier Conder ;

- a German architect and researcher, Conrad Schick, who became a representative of the *Palestine Exploration Fund* and of its equivalent German organisation.

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As will be seen below these four persons localised a great number of cistern-reservoirs in the rocky underground of the Haram, measuring with the greatest precision possible their dimensions and levels, noting the nature of their construction and describing in detail the vestiges of channels and conduits connected to this hydraulic storage network and water conveyance.

Those three officers and the German architect had been preceded by other explorers, whilst at the same time others helped or competed with them, all using the most diverse ruses or means of pressure on the reticent and suspicious Muslim authorities, in their common goal : the archaeological exploration of Jerusalem.

Thus, in addition to these four key persons, we can add, amongst many others, Catherwood, Robinson, Barclay, de Saulcy, Pierotti and de Vogüé.

5/ The rational and systematic scientific exploration of the Haram's rocky underground was carried out over 25 years, a relatively short period of time in archaeological and historical terms, between approximately 1850 and 1875 as a result of a passing combination of Islamic tolerance, indifference or weakness.

The Western archaeologists of this period used many different ruses to achieve their goals, even at the risk of their own lives. In particular was the intrepid Warren whose efforts often reached the limit of Muslim tolerance when he dug shafts from outside of the Haram and from the bottom of these shafts tunnelled underneath the ramparts into the Haram's underground itself.

This dangerous works were undertaken with the sole use of candlelight or burning torches before the introduction of magnesium lamps and without the least protection against the possible cave in of friable layers or ancient collapses around the workers.

And when the Muslims were alerted by suspicious noises that betrayed secret underground work they immediately displayed their anger by menacing, for instance, Warren with reprisals, who was then forced to distribute bakhshish and immediately cease the excavations in progress.

6/ Before examining this unique and complete exploration of the Haram's underground and its hydraulic system, a fundamental question is necessary for the comprehension of the present study :

How could these different, daring and talented archaeologists with their immense scientific erudition :

- Carry out a detailed survey that brought to light the irrefutable proof that the Temple of the Jews lay downstream of its waters reservoir, that is to say that it had not stood on the surface of the Haram above its water tower ?

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- And not take themselves into account their own detailed observations and the results of their scientifically established survey ?

The beginning of an answer to these crucial questions lays in the fact that these archaeologists and explorers had been under the influence throughout the entire course of their lives to religious tradition and inhibitions that are transmitted century after century relatively to the topographical continuity of the site of the Temple of the Jews.

This same presumed site had been successively designated as cursed by the Christians, then claimed by the Crusaders to resist Islam, and finally and definitely appropriated by Islam as having been the site of the Temple.

And the Jews had confirmed this postulate by inventing the cult of the wailing wall.

On the subject of such collective subconscious inhibitions of the scientist community it is necessary to note that almost all the actors in the revival of this historic tradition in the nineteenth century by biased archaeological observations had in their minds, consciously or unconsciously, the ultimate ambition of reaching the summit of the establishment's hierarchy of their time.

- It is how Count Melchior de Vogüé, the author of a monograph, the title of which constituted by itself a governing principle, *'The Temple of Jerusalem, A Monograph on the Haram ech Cherif'*, in which figured a drawing that reconstituted the Temple standing on the surface of the Haram, was elected to the French Academy and became Ambassador to the Sublime Porte of the Ottoman Empire.

- As to Wilson and Warren they were promoted to Generals and knighted by Queen Victoria, who grandly appreciated their conservatism, and judged them worthy of becoming the guarantors of the intangible values of British power and of the Anglican faith, by raising them to the ranks of the ancient nobility of Great Britain.

Thus, for instance, when a controversy broke out concerning the authenticity of the site of the Holy Sepulchre, with certain scholars maintaining that it was within the walls of the antique Jewish Jerusalem, meaning that it was impossible that Jesus had been executed and buried there, Wilson who had become head of the *Palestinian Exploration Fund*, energetically supported the traditionalists and this intolerable controversy soon faded away.

7/ An account of the archaeologist Felicien de Saulcy, also of the French Academy, shows the paradoxically astonishing way, from a scientific point of view and extremely revealing from the psychoanalytic point of view, how this irreducible inhibition in the collective subconscious affected all Western explorers who had the possibility of investigating the Haram and its surrounding area during the unique golden age of archaeological exploration in Jerusalem between 1850 and 1870.

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Further this account of Felicien de Saulcy, in the form of a chronicle, has the interest of illustrating the atmosphere that prevailed at that time and in this particular domain of archaeological explorations in Jerusalem :

In 1863 that is to say before the elevation measures of the underground bedrock had been established by Warren for the *Palestinian Exploration Fund*, Felicien de Saulcy, guided by a remarkable instinct, had the intuition that the crest of the bedrock on which the Haram is built, descended from its highest point and passed the Triple Gate situated approximately in the centre of the southern rampart of the Haram.

Effectively the excavations and the survey carried out a few years later by Warren showed that on both sides of the Triple Gate the bedrock descended rapidly, to one side towards the Tyropean Valley on the west side of the Haram and to the other towards the Kedron Valley on the east side of the Haram.

In this amazingly revealing text of Felicien de Saulcy, we have brought together into one single account the slightly different passages that figured in the two first editions of his work entitled '*Travels in the Holy Land*' :

Félicien de Saulcy : *Travels in the Holy Land* :

Excavations to the south of the Haram-ech-Cherif, at the foot of the Triple Gate :

I will not recount the vicissitudes by which I had to go through to obtain, even with my Firman (Authorization from the Grand Vizier) to commence excavations at the foot of the Haram al Cherif.

It was necessary to obtain the help of my Muslim friends to force the Sheikh of the Schafi Sect to stop his violent opposition that he had made to the Pasha (of Jerusalem) to the execution of my project. His fellow religionists finished by convincing him that I had no other goal than to demonstrate the glory of the works of Solomon, and he raised no more objects.

As soon as everything was said the Pasha gave his consent on condition that one of the Effendis of the Medjlis would be present at the excavations.

It did not matter and Thursday the 26th November Hanna Carlo came to announce that I was free to commence my work, on the condition of paying off, of course, the owner of the cabbage field where I was going to install my workers. From the next day they were at work under the supervision of one of the Cheifs of the Zapties of Serai and watched over by the Effendi named Chams el-Din.

On arriving I found Chams el-Din like extremely upset !

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He detested this excavation and was appalled that they had allowed a Christian dog to touch this venerable and venerated land...

Felicien de Saulcy then engaged in a vast operation of seduction and generalised corruption, and all resistance to the work of excavation finished by disappear :

With cigars, promises and coins, everybody including the owner of the land was with me...

After the first day, they came to tell me they had found the rock (reached the bedrock) and a shaft blocked by large stones piled in...

The base of the Triple Gate was uncovered over a length of 20 metres and this large base that I called Solomonian lay directly on the rock with perfect joints.

I stopped there. A few metres further (along the southern rampart of the Haram) I would have come onto at an enormous layer of rubble more than 20 metres deep over the bedrock...

The shaft (once cleared) was 4,5 metres deep and ended in a gallery only 60 centimetres wide, cut like a tunnel into the rock, or lined by large blocks of stone cemented.

This gallery had a steep slope that went, on one side, to the north north-west (rising) towards the inside of the Haram, and on the other side (going down) towards the south and bifurcating into (two branches) over a length of two metres.

There the two branches came together again and formed a kind of square chamber two metres on each side ; from which the bifurcation recommenced descending towards the south.

- The west branch was almost immediately blocked up by dense rubble and stones of all kinds ;

- the branch to the east was going towards Siloah (situated south down at the bottom of the Ophel) but was blocked up after a distance of 5 metres like the first branch.

From the small square chamber going up towards the Haram (upstream) a second gallery was leading to the north north-east direction, about one metre wide, and with a rectangular trench allowing waters to flow.

The bottom of this trench was covered, like the ground in all the other galleries, by a sparkling white crust, very friable, that crunched under foot like frozen snow.

Then a third gallery was found cutting the first and continuing in the same way (on one side upwards) to the inside of the Haram, and on the other side (going down) towards the Kedron Valley (bordering the Haram to the east).

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Describing this third gallery : From the hole in which it ends, it goes up to the north, a few degrees west into the inside of the Haram, and after a distance of 6 metres cuts the second gallery, beyond which it continues its course (going up towards the north).

On this side of the same point where the hole opened out, this third gallery ran to the east, that is to say almost parallel to the large wall (rampart) of the Haram (going down) a few degrees south over a length of 9 metres, where it opened on to a rectangular chamber 3 metres long by 1.5 metres wide.

All the south side of this chamber was filled with piles of large stones that had collapsed there, beyond which the gallery continued its path directly (down) to the south, over a length of 5 metres, then it formed a kind of S about 4 metres in length.

To the extremity of this curve, the gallery, which had to that point been 1 metre wide, narrowed to not more than 0.5 metre wide.

It continued for 2 metres (sloping down) in a southwest direction, and then turning brusquely at a right angle where it continued in a downwards direction towards the Kedron over a length of 9 metres, at the end of which it was completely blocked up (by another collapse of stones)...

When the English officers (of the *Palestine Exploration Fund* and *Ordnance Survey*) arrived in Jerusalem, their first job was to check what I had published in my exploration at the foot of the Triple Gate :

I do not know whether their job was to check if I had put some whimsical ideas in the account of my explorations. But what I do know is that, by repeating my excavations, they had been able to verify the exactitude of all my observations, exactitude which they mentioned in their report.

Now I shall ask what could have been the purpose of these complicated galleries, if it had not been to evacuate the Sanctuary (of the Jews) of the large quantities of waters that had to be brought there and whose quantity was indispensable to wash the holy courts and clean away the detritus of all kinds that obviously accumulated there on certain Jewish feast days, when thousands of animals were slaughtered and butchered in a few hours.

Without continuous washing with large quantities of waters the surroundings of the Temple and Sacrificial Altar would have become in a few hours, under a sky such as that of Jerusalem, a real source of pestilence.

Eusebius, in his *Preparation for the Gospels*, informed us of a very interesting text relative to the Temple's irrigation system (*Book IX Chapter XXXVIII, the Cologne edition of 1688 page 453*) :

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Here is its translation (by de Saulcy) :

"Aristeas in the book he had written on the interpretation of Judaic Law spoke of the running waters in the City of Jerusalem :

The Temple he said faced to the east with its back to the west. The floor was entirely paved and this paving was at certain points sloping to facilitate the flow of waters which was necessary to provide to wash away the blood of the victims, whose numbers reached several thousand on important feast days. In order to do this an immense supply of waters was always held in reserve : it was supplied by an abundant spring that came from the bowels of the earth and which divided into a number of veins brought the waters to the desired point from where it gushed forth. In addition these canals, admirable and greater than can be described, developed underground, and as far as can be judged from what can be seen, make a tour of 5 stades (1 kilometre) around the Temple. From these canals are numerous conduits arriving at each side of the court from which waters flow to every corner. He (Aristeas) added that all these conduits are connected, partly to the paved floor and partly to the walls themselves (of the court of the Priests) by lead pipes covered with cement, arranged with extraordinary skill and extreme care..."

I shall be allowed, I hope, to acknowledge that these galleries, that I have discovered going out from the Haram to the south (downhill), are indisputably some of these underground canals that Aristeas spoke of, and which evacuated towards the Kedron, the waters which had been used to clean the Temple. And since these canals were indispensable the day when Solomon consecrated this Temple, I hope their antiquity will not be contested.

Thus, with great lucidity and talent Felicien de Saulcy uncovered the system of conduits designed by the ancient builders of the Temple's hydraulic system that enabled waters to freely gush out onto the Court of the Temple with the greatest possible natural head of pressure afforded by gravitational force.

But when Aristeas spoke of underground conduits which **SUPPLIED the Court of the Temple with jets of water under pressure**, Felicien de Saulcy (as all the following archaeologists including Warren will also do) interprets immediately : "**underground conduits which EVACUATED** towards the Kedron the polluted waters which had been used to clean the Temple."

This sophisticated system, explored by Felicien de Saulcy, and cut into a steeply sloping bedrock was composed of :

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- **-a-** successive bifurcations of two ramifications that alternatively connected themselves together, and separated themselves ;
- **-b-** intermediate chambers for accumulation of waters arranged in cascade so as to increase the pressure ;
- **-c-** conduits with sharp right angle elbows probably for the same usage ;
- **-d-** and these conduits tapered thus increasing the force of the jets outgoing.

So it appears logical that the Temple could only be situated **downstream** of such an elaborate system specifically designed for the propulsion of high volume waters jets under a strong natural head of pressure (and preceding in its antique mechanical way the modern karcher systems), and was, not at all, designed for what, on the contrary, should have been a very straight and as large as possible lay out for the quickest *evacuation* of big quantities of waste waters, blood and dejections.

Moreover, in 1863 de Saulcy at least knew that the giant underground cisterns called the '**Great Sea**' and the '**Sea**', (numbered n°8 and n°7 by Warren) which could stock twenty million litres of waters, were built **upstream** in the same layer of bedrock in the south of the Haram not far from the ramparts where the conduits explored by de Saulcy exited.

Alone the **Great Sea** and the **Sea** situated upstream could have been considered by de Saulcy as potential reservoirs for the 'immense supply of waters', which according to Aristeas was necessary for the rituals of the Jewish religion.

Now in spite of this overwhelming evidence observed and analysed in the greatest detail, and even physically at hand for Felicien de Saulcy, and in spite of his great learning and direct knowledge, from for example the Greek text of Aristeas, an inhibition derived from the collective subconscious and the almost congenital feeling of the archaeologist explorer, made him, contrary to all logic, both visual and rational, position downstream of the presumed site of the Temple, that is to say downstream from the Dome of the Rock, the sophisticated waters supply system that he was in the course of exploring and which by the unchanging effects of gravitation could have been able only to serve the Sanctuary situated downstream of this sophisticated system, and never back upstream, and upwards to the surface of the Haram. To this effect Felicien de Saulcy subconsciously replaced the waters supply system with its spouts, situated upstream of the Temple, as it was in fact described by Aristeas, by a cleaning system for the evacuation of the offal and dejections that would have been installed downstream of the Sanctuary.

Now, this downstream waste evacuation system had not retained the least attention of Aristeas, to whom the archaeologist had made reference to, because the Jewish Egyptian traveller had exclusively marvelled over the **water supply** to the Sanctuary.

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And in any case the evacuation system for detritus in no way required an extremely sophisticated system and so specifically designed with special spouts from which waters could surge forth under a high pressure such as that de Saulcy had just discovered at the foot of the southern ramparts, which is to say downstream the Haram.

Furthermore it could be remarked that such a complex system whose conduits were designed to evacuate detritus from the Temple that tapered towards the outlet spouts would have no doubt been blocked up almost immediately.

But whilst the inhibitions of de Saulcy prevented his faculties of analysis from functioning it can be observed that his subconscious intuition altogether inhibited and awake was so sharp that the clever archaeologist could not avoid noting the immaculate whiteness of the accumulated mineral deposits that remained on the sinuous and tangled network of conduits that he had discovered.

It could be supposed, at least in imagination, that the piles of centuries old detritus, of blood and urine would have probably not offered to de Saulcy's eyes a virginal whiteness 'like frozen snow'. Because in fact what the archaeologist had the intense emotion of discovering were the ancient vestiges of the immaculate living waters that were to gush out from the spouts, day after day, from the reservoirs beneath the Haram onto the Court of the Temple of Jerusalem situated downstream of the Haram, and not upstream of its water reservoir, which is to say not upstream of its water tower.

8/ This quite absurd theory of the pre-eminence of a system for the evacuation of detritus built into the bedrock of the Haram had been initiated by the archaeologist Ermete Pierotti, whose explorations had shortly preceded those of Felicien de Saulcy, as an explanation to resolve the prefixed ideas of the 19th century archaeologists.

This explanation by the Italian engineer had a certain importance as it was to influence also the work of Count Melchior de Vogüé and his reference work *'The Temple of Jerusalem, A Monography of the Haram ech Cherif'*.

In fact these archaeologists who situated the site of the Temple of the Jews on the site of the platform of the Dome of the Rock, or in its immediate surroundings, were often embarrassed to discover as the explorations progressed the growing amplitude of the hydraulic system that extended downstream to a great depth and downhill well beyond the presumed site of the Temple. It was in this way Ermete Pierotti was led to establish a theory that was to influence all lines of reasoning relative to all of the first discoveries in the Haram's underground, or more exactly that was to neutralise all the logical demonstrations that should have resulted :

According to Pierotti the main concern, not to say the unique obsession of the ancient Jewish engineers who had conceived and built the complex system, had been to ensure that the

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blood and detritus from the sacrifices that took place at the site of the Dome of the Rock, were evacuated by conduits to a point downstream of the Kedron Spring, so as not to pollute the waters.

Count Melchior de Vogüé employed the same argument to situate the Temple of the Jews near to the Dome of the Rock, above an underground passage (n°1 according to Warren) and which was according to this theory a vast cistern for the collection of the sacrificial victims' blood, that is to say an antique cloaca... (This cistern was in fact, in its final form, a later construction dating from the Umayyad period).

Through these different theories that can be qualified as unconscious intellectual diversions, the vast hydraulic installation designed for the storage and flow of waters towards the south and downstream of the Haram, was eclipsed or masked by all these scholarly nineteenth century archaeologists as a system for the evacuation of the cesspools, resulting from the vast numbers of sacrifices practised by the Jewish Priests that were supposed to have taken place on the exact site of the Dome of the Rock.

The idea of huge cloaca keeping carefully stocked all the fetid detritus of the sacrifices right beneath the Jewish Temple where dwelt the Divine Presence (Shekinah), is a very strange and rather absurd idea, which was nonetheless accepted by almost all the 19th century archaeologists, stuck, as they were, by the irrefutable reality of the topography of the Haram and duped by a false tradition which was the result of the ultimate victory of the pagan God-Emperor Hadrian.

In reality and if in fact, one or two of the conduits, simple, large in section, and rectilinear, facilitated the evacuation to the Kedron Valley of the blood of the animals sacrificed in the Temple. It is evident that this evacuation by large conduits, simple and direct, posed no technological problem given the abrupt slopes of the site, whilst on the contrary, the storage and continuous delivery of living purifying spring waters to the Sanctuary and cleansing waters under pressure for its court constituted a real and colossal technological challenge, for which the Jewish engineers of Solomon had consecrated all their energy and creativity.

9/ The three British officers of *the Ordnance Survey and the Palestinian Exploration Fund*, Wilson, Warren and Conder together with the German, Schick, in no way, sought to mask the reality of the hydraulic system that lay in the bedrock of the Harem :

On the contrary they scientifically explored it in great detail, surveying the levels and dimensions with as much rigour as the circumstances permitted.

For these four key archaeologists, to whom is owed the precise knowledge of the hydraulic system as it stands today, the cisterns that were codified and studied, as well as the different associated conduits, in their vast majority contained and carried waters and not waste matters.

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But for these four archaeologists as for their predecessors or rivals the idea of questioning the proclaimed site of the Temple on the Haram, a physical postulate, was totally excluded.

In consequence all these nineteenth century archaeologists rallied to another important idea, which became obligatory : that the waters necessary for the Temple rituals were drawn with buckets or other recipients from the underground cisterns, whatever the distance or the depth from the supposed site of the Temple and the unrealistic conditions linked to this procedure.

Consequently the only specific reference mentioned in the *Tractate Middoth* was retained by the archaeologists, that is to say a particular reference which indicates that the waters necessary for the Temple were drawn from one well.

Now this particular reference seriously contradicts other descriptions in the same *Tractate Middoth*, for example those concerning the mikvehs for the purification of the High Priest, clearly situated on the upper levels of the Parvah Chamber and of the Water Gate, or those detailing the supply to the Priests' baths and to the baths in the Lepers Chamber :

All these precise descriptions seem to indicate that this reference to a well is a later and isolated interpolation, following the Babylonian Rabbis' aggadic invention of a colossal wheel with which an Herculean Priest would have lowered and raised daily, at a depth of at least twelve metres, a one hundred tons bronze basin for purification...

In fact this interpolation in the *Tractate Middoth* had also probably been put in order to rectify observations that the Jews had been able to make themselves on the Haram of the Muslims, in the early times.

On this point it is necessary to recall that a few Jews had been appointed to the cleaning of the cisterns at the beginning of the Umayyad occupation of Jerusalem, when they had the opportunity to observe in situ and with the greatest possible realism the flagrant contradictions of certain descriptions given in the *Tractate Middoth* with the fixed topographical reality of the Haram and of its underground waters system.

The introduction of an interpolation into the *Tractate Middoth*, in all good faith, appeared necessary to modify the unavoidable evidence that the waters retained at a depth of twelve metres in the Haram underground could have not possibly been brought up to flow freely on the surface above.

It is probably in this manner, that the brief, isolated and incoherent reference, that all waters for the Temple rituals were drawn from one well allowing to haul waters from an isolated cistern-reservoir, was introduced into the *Tractate Middoth*.

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In fact a single such specific mention was all that was necessary to maintain a certain logical coherence to the topography of the Muslim Haram associated with the presumed site of the ancient Jewish Sanctuary, and this single interpolation being made to the detriment of all other information cited in the same Rabbinic Literature and in particular in the *Tractate Middoth*.

Secondarily, it seems rather probable that such wells may have been dug in the underground of the lost platform where the Temple stood particularly during its construction.

But these wells could have provided waters only for a profane use and not for a ritual use : it is likely from such a mention in the *Tractate Middoth* that an unrealistic interpolation was set up with asserting that from one of these wells were hauled all the waters necessary for the Cult in the lost Temple

10/ The descriptions, surveys and elevations recorded relative to the cistern-reservoirs, conduits and channels in the underground bedrock of the Haram were principally made by Pierotti, Barclay, Wilson, Warren and Schick. Certain measurements were checked by Conder, in particular the precise elevation above sea level for each cistern and the surface level of the Haram vertically above each respective cistern.

The measurements made by these different archaeologists sometimes diverged as the conditions under which the explorations were made varied in time for political and technical reasons :

-A- The work of the Christian archaeologists was in a general manner of speaking subject to a constant pressure from the Muslim authorities, often obliging them to attend to the most pressing matters so as to ensure that they collected the information that seemed to them the most essential at a given moment.

Thus for example when Warren discovered an opening or new location they immediately proceeded with the preparations for the exploration of the new discoveries. But sometimes the Muslims religious authorities responsible for the Haram, totally hostile to the authorisation accorded to the officers of the *Ordnance Survey* by the political authorities, sealed the openings during the night so as to prevent the Christian archaeologists from continuing their profanation of the Haram's underground.

In the same manner another subtle but also antagonistic game was being played, opposing the engineer-archaeologists and the religious authorities of the Haram :

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The British engineers who had been officially given the responsibility of repairing and improving the waters supply installations next to the Al-Aqsa Mosque, had at times difficulty in determining whether a conduit was part of the system installed by the Muslims, principally after the Crusades, or if the conduit was part of the vestiges of the installations from the time of Solomon or Herod.

The archaeologist-engineers always pretended that all the underground installations were used or could be used by the Muslims, whilst the religious authorities of the Haram in spite of the lack of scientific qualifications remained suspicious and reticent, even obstructive, having suspected that the interest of the *Ordnance Survey* officers went well beyond the simple objective of improving the water distribution system for ablutions areas in the mosques.

-B- The first explorers were guided by the light of candles and burning torches, which in the vast and obscure underground system left many places in the half-light or in the dark.

Later the explorations were made in the light of magnesium lamps that provided more light but for a very short duration :

Also any measurements being taken were often interrupted by the extinction of the lamps with the risk of becoming approximated unless the whole procedure was repeated with great effort and even, at times, considerable risk.

-C- Concerning the cistern-reservoirs, which were not conceived in a regular geometric shape, the terminology used by each archaeologist to localise, measure and define a specific formless location, may have induced certain errors, confusions or contradictions.

- In the same manner certain data that could seem evident to an archaeologist were not mentioned whilst the same data was detailed by another.

It is why for example the height between the surface of the Haram and the summit of the roof of a cavity was not always expressed in the same way by Warren and by Schick.

In addition it was at times difficult to discern through certain recorded figures whether the thickness of the rock roof of the cavity was included in the total height or if it should be added, estimated or calculated.

-D- The bases of the cistern-reservoirs, for the most part abandoned for centuries and poorly lit during their exploration were covered by various layers of rubble, mud, stagnant waters and other deposits :

- The possible work of clearing the floor was practically excluded by the Muslim authorities, who feared altering the integrity of the Haram underground, including the deformations caused by time.

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- Thus it is sometimes difficult to appreciate in a very precise way the real elevation of the surfaces of the cisterns bases :

This resulted in extremely approximate and varied evaluations that prevented, amongst other data, the measurement of the slopes these floors may have had, or determining the existence of conduits connected at the bases of the cisterns.

- In addition a great number of collapses hid places that would have been essential to explore and each archaeologist attempted to reconstruct them in his manner by integrating them into his report.

-E- For all these reasons in many cases it was practically impossible for the archaeologists to determine whether conduits or channels existed at the base level of the cisterns :

Generally the conduits and channels that could be recorded were either situated at a certain height above the base of the cistern and were visible, or those that had been discovered and explored were situated outside of the cistern they served.

-F- To conclude on the reasons for certain divergences between the measurements made by the archaeologists, principally Warren and Schick, it could be noted that a subtle rivalry opposed the two men, which was typical of this period when scholars discovered unknown worlds ; and this silent but tenacious competition probably affected sometimes the differences in the announced results :

Which explains, on occasions, the need for choosing between divergent measurements, taking an average, or choosing between the different measurements noting the one that seems the most coherent both from the work accomplished by the archaeologists and the gravitational logic of the overall system.

11/ The results of all these explorations and surveys with the related maps and drawings were published principally in the *Palestinian Exploration Fund Quarterly Statement* that became the *Palestinian Exploration Quarterly*, and in successive works published by these different archaeologists.

Then finally in 1884 a book by Warren and Conder collected most of the previous works carried out : *The Survey of Western Palestine*, which included two parts for Jerusalem :

- The descriptions.
- Detailed maps mostly prepared by Warren.

In addition in 1887 Conrad Schick published his own work, where certain measurements concerning the underground hydraulic system differed from those published by the British engineers.

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The title '*Beit el Makdas oder der Alte Tempelplatz zu Jerusalem*' ('*The Haram ech Cherif or the Site of the Ancient Temple as it is Now*'), was probably inspired by the work of Count Melchior de Vogüé, '*The Temple of Jerusalem, A Monograph on the Haram-ech-Cherif*'.

Whenever the texts with data from 1863 onwards, concerning the exploration of the Haram underground, were not contained in these books published by these four archaeologists, they were, mostly, published in the form of articles or contributions in the review '*The Palestine Exploration Fund Quarterly Statement*', later the '*Palestine Exploration Quarterly*', and all these texts form part of the Archives of the *Palestine Exploration Fund*.

12/ The preparation of the first systematic plan of the underground cistern-reservoirs and the conduits of the rocky underground of the Haram was undertaken by Charles Wilson in 1864-1865 for the *Ordnance Survey of Jerusalem*.

The official reason for this topographical survey was the planning of a water supply system for Jerusalem and the Haram and an efficient system for the evacuation of waste waters.

But in spite of this official mission the resistance of certain Muslim religious leaders did not weaken and provoked in a recurring fashion many difficulties for the exploration of the Haram underground.

In addition the exploration was made difficult at times because it was forbidden to dig shafts or carry out the least excavation work in the Muslim Haram, that is to say archaeological work. In the same manner scaffolding was totally excluded which meant the archaeologists had to resort to real acrobatic exploits.

Wilson wrote a sincere account of the first exploration campaign, which has the merits of being open-minded as to the degree of precision of a survey carried out under such difficult conditions :

Wilson : *Ordnance Survey of Jerusalem : 1864-1865* :

The cisterns were explored in December and January before the last rains.

The measures were carried out with a yard stick when I was alone and with a surveyor's chain when we were several persons. The elevations were measured with a prismatic altimeter or with a compass.

But none of these measurements could be considered as perfectly exact because it is not easy to work holding a candle in one hand and with your feet in waters.

On certain occasions it was very difficult to determine the exact nature of the vault of the cistern or to be entirely sure of the presence or absence of a conduits outlets or inlets. In addition the candles gave off a very weak light for such

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immense cavities, and before the arrival of the magnesium from England the winter rains had started and we were obliged to halt the explorations.

Three men were employed for the exploration of the cisterns, an interpreter and two labourers. The most part of the descents into the cisterns were made with a rope ladder. But in certain cases for the smaller cisterns their inlets were too narrow and this method could not be used, then a knotted rope was tied around the waist and lifting our arms as high as possible we tried to squeeze into the access holes on the surface.

The interpreter watched everything that happened and sent down candles by a cord for this purpose. Certain of these descents were carried out by Doctor Chaplin, who was always ready to join in these explorations ; others were made by myself alone.

It was a big problem to come back up, because the rope ladder often hanging 40 feet (12 metres) swung and twisted in every direction in a very disagreeable way, whilst our clothes were soaked and hindered considerably our legs movements...

After his exploration of Jerusalem and the Haram, Wilson continued a brilliant military career and was rewarded with a knighthood by Queen Victoria.

Wilson gave his name to an arch that was discovered perpendicular to the western rampart of the Haram to the north of the Wailing Wall : the Etam Aqueduct that carried the living purifying waters to the cisterns from the Solomon's Pool, near to Etam, passed over this very important arch for our present study.

After being promoted to the rank of general and director of the Ordnance Survey, Wilson kept close contacts with the archaeologists who succeeded him in Jerusalem.

13/ Wilson's successor, Charles Warren, accomplished a considerable and irreplaceable work of archaeological explorations in the immediate surroundings of the Haram as well as under its ramparts and in its underground structures.

Most of the mathematical knowledge concerning the bedrock of Jerusalem and particularly that of the Haram is the result of his extremely meticulous pioneering work : Warren established the precise topographical and elevation contours of all the subterranean rock as well as inventorying all the hydrographical system of the underground cisterns with reference numbers and all their corresponding measurements with the greatest precision possible.

Conrad Schick will then hasten to modify (not without good reasons) the numbering of the underground cisterns :

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Nevertheless, in this present work, Warren's numbering system has been exclusively employed in order to avoid all confusions.

In an account published in the review *The Palestinian Exploration Fund Quarterly Statement*, Rob Roy Mac Gregor gave a description of Warren that shows his almost instinctive and organic enthusiasm as an archaeological explorer :

John Mac Gregor : Palestine Exploration Fund Quarterly Statement :
1870 : 20

Mister Warren seems in truth to have an essentially underground spirit of mind, and it is really fortunate for him that this very particular aptitude and his duty meet together in the same goal.

Today we visited, privately, the Haram whose splendid green lawns were punctuated by thickets of spring flowers, grouped together here and there around the ancient pillars of marble blocks.

Suddenly Mr Warren decided to raise one of these blocks, and soon the cords, levers and ladders were in action. The old Sheikh responsible for the Sanctuary and sitting on the grass, shook, sighed and groaned, when he saw the Englishman disappear into the great cavern that was the last cistern examined on this spot.

After having measured the underground cavity, by swinging the cord in the dark hole that was lit at the necessary places with light produced by his magnesium, Mr Warren suddenly penetrated into a small hole situated over this cavity and in which a terrier would not have succeeded in entering, and left us not without having joked to the worried Sheikh, who forced a smile, at the same time impressed and frightened by this incomprehensible intruder whom he was supposed to watch.

After a suspense of twenty minutes we heard from far off a joyous 'Hello!' in a totally different direction from his starting point.

Suddenly we saw Mr Warren reappear a few hundred metres away where he emerged onto the surface after having followed underground a new passage that he had explored crawling in the greatest obscurity.

In spite of his great enthusiasm, digging and searching in every nook and cranny, it should be noted that at the end of the exploration campaign that took place from 1867 to 1870, Warren after having inventoried, studied and measured a large part of the underground system of cisterns and conduits such as they are known to us today, declared in 1871:

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Warren : *The Rediscovery of Jerusalem :*

Account of Exploration and Discoveries made in the City and in the Holy Land :

There remains an immense amount of exploration work to be undertaken in the Sanctuary.

All the surface drains should be examined, and it is probable that new cisterns will be discovered...

When he wrote these lines, Warren could not have imagined that the golden age of archaeological research in the Haram of Jerusalem was to definitively end only four years later in 1875 with the last intensive explorations carried out by his colleague and rival, Conrad Schick.

Schick was to contest the details of numerous measurements carried out successively by Wilson, Warren and Conder (the successor of Warren), but overall no great discovery was to be made after the immense work of Warren, even though it is possible and probable that other huge cisterns still remain to this day undiscovered and unexplored.

After his mission in Jerusalem Warren, as for Wilson, had a brilliant career and, like Wilson, he was promoted to general and knighted by Queen Victoria, and continued to maintain close links with the *Palestine Exploration Fund*.

14/ Claude Regnier Conder, who succeeded Warren for the *Palestine Ordnance Survey*, was just as talented as his predecessors for the exploration ; in addition his work consisted of a very detailed and meticulous collation of all the survey works previously carried out.

It appears that certain work carried out by Conder in the Haram coincided with those made by Conrad Schick, which helps to settle certain details. Nevertheless, in a general manner and out of loyalty to his colleagues, Conder privileged the data of Wilson and Warren compared to that of Schick.

15/ Conrad Schick had the chance of having the last great opportunity offered to Western archaeologists in exploring the Haram underground.

Schick was born in Germany and became architect in Jerusalem for a branch belonging to a London organisation working for the conversion of Jews to Christianity.

Being extremely interested in archaeology Conrad Schick sent many articles to the Review of the *Palestine Exploration Fund* and the Review of the equivalent German organisation the '*Deutscher Palästina Verein*'.

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In this way Schick built a certain reputation and established a close cooperation with the two archaeological organisations, his contribution being most appreciated because of his meticulous work and his solid erudition.

As it happened the Ottoman Empire wished to participate in the Universal Exposition of 1873 in Vienna. The Austrian Consul in Jerusalem advised the Muslim authorities to expose a model of the Haram-ech-Cherif and recommended that the German architect Conrad Schick undertake the work.

As a consequence Schick had relatively free access to the Haram and completed the model that was exposed in the Turkish pavilion at the Universal Exposition in Vienna in 1873.

In the wake of his success Schick undertook the exploration of the Haram underground to prepare another model.

Schick then proceeded to make new measurements of the hydraulic system as opposed to those made by Warren with the result that certain divergences appeared between the two surveys :

In a general manner Schick's figures seem to be more exact, but it is impossible to exclude errors he could also have made, or structural modifications that may have occurred between the two archaeological campaigns, for various reasons including deliberate or involuntary actions by the Muslims.

In addition there were confusions in the methodology between the two systems of measurement established by Warren and Schick :

Thus in order to ensure the most exact examination of the hydraulic system it is often necessary to use these two systems and, in the case of divergences, to either use an average, or the figure that seems most logical in the general plan of the overall system.

But in any case the difference between the systems of Warren and Schick are relatively minor and do not affect the fundamental organisation, size or proportions of the different elements that compose the vast and ancient hydraulic system built by the Jews upstream of the Temple, and faithfully preserved by the Muslims as a fossilised complex in the bedrock beneath the Haram, whilst the platform that had supported the Temple, razed on the orders of Hadrian had completely disappeared.

16/ Before examining the underground site of this unique underground hydraulic system, which has no equivalent in archaeology since it had been built in compliance with the specific prescriptions that could only be applied to the site of the Jewish Temple itself, it is interesting to try to discern the dominating doctrine that had consciously or unconsciously inspired the principal schools of archaeology in the nineteenth century, which had had the chance to benefit from this unique occasion to explore the Haram underground and survey minutely its hydraulic system.

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Broadly the following schools could be distinguished :

- The Franco-Italian school represented amongst others by Pierotti, de Saulcy and Vincent (the latter being a compiler)
- The Anglo-Saxon school represented amongst others by Barclay, Wilson, Warren and Conder
- The German school represented amongst others by Schick

- The Franco-Italian school influenced at the beginning by Pierotti had deducted from its observations the importance of a network designed to evacuate the blood and dejections of the animals sacrificed, even supposing immense stagnant cesspools that could alone explain certain colossal reservoirs built deep beneath the presumed site of the Temple (that is to say on the platform of the Dome of the Rock or on its immediate surroundings).

Pierotti, de Saulcy and de Vogüé had not hesitated to identify the complex system as being destined for evacuation purposes, even though the only rabbinical reference on this subject made allusion to a simple channel that evacuated the waste matter to the Kedron Valley.

- The Anglo-Saxon school did not lapse into this exaggeration, and meticulously recorded the existence of an extremely complex underground hydraulic network, but had not or was not able to raise the question as to the finality of such a complex network.

In addition, like the Franco-Italian school, the Anglo-Saxon school had accepted the idea that the water necessary for Jewish rituals was drawn from deep wells by means of winches with suitable recipients. Warren for example on his drawing showing a reconstitution of the Temple indicated the presumed site of the one well mentioned in the *Middoth Tractate* above a cistern situated near to the Dome of the Rock. On the other hand Warren had ignored, forgotten or deliberately omitted the mikvehs of the High Priest on the upper floor of the Parvah Chamber and the Water Gate, which were specifically mentioned in the *Middoth Tractate* and the brazen basin for the purifications of the Priests.

That is to say that the Franco-Italian and Anglo-Saxon Christians had not taken into account, or deliberately ignored the imperative character of the supreme purification of the living spring waters in the heart of the Jewish Sanctuary.

- The German school, essentially Schick, had also meticulously studied the hydraulic network : The complexity of this network and its finality seem to have greatly puzzled Schick : In fact the German unconsciously troubled had vainly sought until his death to discover up in the northern heights of Jerusalem vestiges of a spring that could, he ardently hoped, have possibly flowed by gravity to the surface of the Haram and the Dome of the Rock.

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Had he found such a plentiful spring, which had never existed on the heights surrounding Jerusalem, Schick would have in any case been confronted with two major insurmountable archaeological problems :

a/ How would the waters of such a spring have been able to overcome the profound difference of levels in the subterranean rock situated to the north of the Dome of the Rock at the level of the Golden Gate ? This difference of levels reveals in fact a deep valley which has been filled in by the Omeyyads in order to place the Dome of the Rock in the centre of the Moslem Haram.

b/ The Etam spring is specifically indicated in rabbinical writings as the source that supplied the purification waters for the Mikvehs of the High Priest and for the basin baths of the Jewish Priests.

Now, the Etam Aqueduct carrying the purifying waters from the Etam Spring, penetrates into the underground of the Haram on the aqueduct of the Wilson Arch, but well below the surface level of the Dome of the Rock and well below the surface level of the Al Aqsa Mosque, that is to say well below any point of the entire surface of the Haram.