

No.	Position.	Level above the Mediterranean.	Depth below surf. of ground.	Authority.	Remarks.
255	Back of shoemaker's shop, N. of last ... ..	2467	42	C	For these observations, 250—259, see Lt. Conder's plan of this scarp. 10ft. above surface in cemetery.
256	N. end of scarp, N. of tower	2480	...	C	
257	Tower in S.E. corner Protestant cemetery (top of scarp)	2480	...	C	
258	Bottom of same scarp ...	2435	35	C	
259	Scarp running N.E. from last	2500	...	O	Surface.
260	Cistern opposite last on S.E.	2480	...	O	Surface.
261	Rock 400ft. S.W. of No. 250	2380	...	O	Surface.
262	„ 400ft. S. of last ...	2350	...	O	Surface.
263	Scarp 200ft. W. of Pool of Siloam (top) ... ..	2200	...	O	Surface.
264	Scarp 300ft. E. of pool ...	2160	...	O	Surface.
265	Scarp 500ft. N. of Acedama	2180	...	O	Surface.

CLAUDE R. CONDER, LIEUT., R.E.  
Nov. 1st, 1879.

## NOTES ON COLONEL WILSON'S PAPER ON THE MASONRY OF THE HARAM WALL.

### I. *Dressing of the Drafted Masonry.*

The peculiar dressing of the Haram masonry—which is not mentioned in Colonel Wilson's paper—seems to be worthy of notice. The eight-toothed chisel described by Colonel Warren (Recov. Jer. p. 138) was used in two directions at right angles, making a regular criss-cross pattern. This dressing has been found at the south-east angle in the courses near the base of the wall, and it has also been specially noted, 1st, on the stones of the Master Course; 2nd, on those at the Wailing Place; 3rd, at the south-west angle; 4th, on the voussoirs of the Tyropœon bridge. This dressing distinguishes the finished masonry of the Haram from other drafted masonry of later date. The stones in the wall east of the Holy Sepulchre, for instance—supposed by Du Vogüé to be part of the *propylæa* of Constantine's great Basilica—are finished almost as finely as the Haram stones, but have no criss-cross dressing. The inferior Byzantine drafted masonry (as for instance in Justinian's Church on Gerizim) is dressed with a toothed chisel used in various directions, but the regular criss-cross pattern of the Haram work is never found on it.

On the supposition contained in Colonel Wilson's paper this dressing would have been first used by Nehemiah, and four centuries later by Herod, and again six centuries later by Justinian, a result which it seems difficult to adopt without hesitation. As far as our information yet goes it appears that the method of dressing masonry is as a rule very

distinctive of the period to which the masonry belongs. Possibly, then, all the stones with criss-cross dressing may belong to one period.

The present arch of the Tyropœon bridge seems, as Colonel Wilson points out, plainly attributable to the time of Herod the Great, and the voussoirs, as above said, are all dressed criss-cross, like the stones round them. I would suggest that it is possible that the more ancient masonry of the Temple Area was removed by Herod, who "took away the old foundations" (Ant. xv 11. 3) and built the cloisters "from the foundation," (Wars i. 21. 1).

### II. *Dressing of the Byzantine Masonry.*

The large plain masonry which stands immediately above the drafted stones is found in many parts of the Haram occurring in connection with round arches having this special characteristic, that the keystones are very narrow and that the voussoirs graduate in width to the haunches where the proportions are more cubical. The size, shape, and dressing of these stones, together with this peculiarity of the arches, are architectural features which occur throughout Palestine in the interiors of Byzantine convents between the fourth and seventh centuries. In earlier Roman work the voussoirs are of even width, as in the aqueducts at Cæsarea; and the style of building described seems distinctive of Byzantine period. For this reason it would appear that Wilson's Arch, which consists of voussoirs so graduated, cannot probably date earlier than the Byzantine period. The same kind of vaulting occurs in the passages from the Double and Triple gates in the roofs of Cisterns Nos. 1 and 3, and in the passage from the Prophet's Gate. The walls and vaults (where not of later construction) in the Twin Pools present the same peculiarities in the proportions and finish of the stones and in the vaulting. The dressing is with a toothed chisel used irregularly, and the finish is generally coarse and uneven when compared with the Crusading work, which is distinguished by careful tooling, small stones, and masons' marks.

### III. *North-West Angle.*

The general conclusions of Colonel Wilson's paper confirm those advocated in my paper on the Haram read to the Royal Institute of British Architects (Transactions, 1879, No. 1, p. 27). The discrepancy in the level of the aqueduct under the scarp, as given by Mr. Schick, may be due to the fall in the channel from north to south. It does not appear where the level 2,412 was taken, but the following was that which I obtained in 1873:—

Level of Haram at window . . . . .	2431
Height of Aqueduct, 6 feet 6 inches	} . . . . . 25
From roof to Haram floor, 18 feet 6 inches	
<hr/>	
Level of the bottom of the Aqueduct channel west of the window . . . . .	2406

The rock at this point is 3 feet higher (2409), the channel being 3 feet deep.

The level 2429 is not that of the window, but of the floor of the chamber outside the Haram wall, in which I discovered the buttresses shown in my sketch (*P. E. F. Quarterly*, 1877, p. 136). The level of the sill of the old window is the same as that of the Haram inside—*i.e.*, 2,431, according to the Ordnance Survey.

The reason why the scarp found running from the window westwards to the aqueduct could not be traced farther west is that the upper part of the aqueduct consists of a masonry wall and arch which could not at the time be broken through. It should also be observed that close to the point where the aqueduct is intersected by the Haram wall there are two large tanks on the interior (Nos. 18 and 22).

The level of the aqueduct is 2406, that of the bottom of Tank No. 18 is 2391. Thus the aqueduct might probably have entered the tank 15 feet above the bottom. The total depth of the tank is 34 feet 6 inches.

The height of the scarp at the window is 25 feet above the exterior, and 3 feet above the interior of the Haram.

#### IV. *North Wall of the Haram.*

It should be noted that some of the stones of the south wall of the Birket Israil have fallen out, and that a second row of similar masonry, with wide joints packed in a similar manner, is visible behind. Taking this in conjunction with the fact that the vaults inside this wall are not earlier than the twelfth century, it seems highly improbable that any drafted masonry like that of the other walls of the Haram exists here.

#### V. *East Wall.*

The level of the highest course of rough drafted stones is 2346, which appears to be that of the rock just north of the Golden Gate, at about 1,090 feet from the south-east angle. The rough masonry would probably not extend farther south, judging from the similar case on the south wall.

It should be noted also that the line of the ancient rock scarp found by Colonel Warren to form the north wall of the platform on which stands the Dome of the Rock would strike, if produced eastwards, the same point, 1090 feet from the south-east angle. These two indications perhaps point to an ancient corner as existing near the Golden Gate.

The suggestion that the city wall did not extend farther north than the present north-east angle of the Haram seems open to the objection that the north-east portion would in this case run nearly at the bottom of a valley, and that it would be entirely commanded from the hill (Bezetha) on the north side of the valley. The disappearance of the ancient masonry farther north seems, as in other parts north of the city, to be due to the fact that the rock is at no great distance below the surface, and that there is no great accumulation of rubbish on this side of Jerusalem.

It appears that the foundations of almost the whole of the third wall must have been dug up and reused in building the later walls, which have been renewed seven times since the great siege, and now consist to a great extent of ancient materials. The rock scarp at the north-east

angle of the modern city runs in line with the east wall of the Haram, and turns north at the top of the hill. I would suggest that it represents the original line of the third wall on this side, as previously proposed by Colonel Warren and other authorities.

#### VI. *South-East Angle.*

Whatever be the reason for the straight joint on the east wall of the Haram, there seem to be objections to the supposition of a tower unconnected with the western part of the south wall which are worthy of consideration.

1st. Josephus states that the Ophel wall joined the east cloister of Herod's Temple (Wars, v. 4. 2), just as the wall discovered by Colonel Warren on Ophel joins the east wall of the Haram. Josephus makes no reference to any large tower at this point, and the supposed dimensions of 108 feet side would represent a tower considerably larger than the largest of the three Royal Towers which the historian describes so minutely.

2nd. Although the inner side of the ancient masonry of the east and south walls is visible in the great vaults at the south-east angle, no remains of the north and west walls of the supposed tower can be seen in them. The substructures extend 200 feet either way along the walls, so that the foundations of the tower ought, if they still existed, to be visible within them.

3rd. There are no remains of any ancient corner at the Triple Gate, or of any wall like that of the Haram running northwards from that entrance.

In the absence of a complete examination of the foundations of the south wall the best indication obtained seems to be that afforded by the Master Course. Colonel Wilson appears to follow Mr. J. Fergusson in attributing this course, which is visible between the Single and Triple Gates, and appears to connect the south-east corner with the rest of the south wall, to Justinian. Against such a view it may be urged that at the south-east angle this course, standing on twenty-seven courses of drafted stones, and apparently *in situ*, has seven courses of the same masonry above it; that the dressing of the stones in the Master Course is the same as that of the other courses of drafted masonry; that it is not a dressing used in any building of the Byzantine period as yet found, but occurs on the Herodian masonry of the south-west angle of the Haram. Immediately west of the Single Gate, the level of the bottom of the Master Course is about 6 inches above the surface, and another course of drafted stones is then visible beneath.

I would suggest that the undrafted masonry which occurs on all the walls of the Haram in connection with details of architecture plainly Byzantine is attributable to Justinian, and that it is impossible to separate the Master Course from the other courses of drafted masonry with which it is identical in character and dressing.

The tabular statement (page 64) of the levels of courses E and H might perhaps give rise to an impression that a break must occur in the

line of the beds of these courses between the Triple Gate and the south-east angle. The difference of 1 foot 6 inches is, however, apparently due to the fact that the courses were here not built quite horizontally, as Colonel Wilson so clearly explains in speaking of the great course (p. 55).

It is worthy of remark that all the dimensions of the Haram—angular, horizontal, or vertical—are apparently so rude as to suggest very imperfect means of mensuration. The same rudeness of measurement characterises even the finest specimens of the Jewish tombs.

#### VII. *Identifications.*

Some of the identifications proposed in Colonel Wilson's paper appear to be open to further consideration. He supposes that the expression used by Josephus (*Ant.* xv. 11. 5) as to the first gate on the west refers to the viaduct over the pool *el Burak*. The late date of this viaduct has, however, been already indicated. Josephus, speaking of four western gates, says: "The first led to the king's palace, and went to the passage over the intermediate valley" (*Ant.* xv. 11, 5). He again mentions "the passage to the upper city" above the Xystus, where was Agrippa's palace (*Wars*, ii. 16, 3), which seems probably the same place. In this case the first gate led out by the Tyropæon Bridge, but in no case could it have well led to Wilson's Arch, which is intermediate between the two gates or passages (*Tanks* Nos. 19 and 30), and would therefore, had the viaduct then existed, have occurred second or third in the enumeration of the gates.

It is not clear why Colonel Wilson supposes the bridge broken down during Pompey's siege to have been of wood. Josephus does not say so, and the bridge in question may possibly be recognised through the older voussoir lying beneath the pavement of the Tyropæon bridge (*Ant.* xiv. 4. 2; *Wars* i. 7. 2).

The suggestion of the existence of the original wall of Solomon's Temple east of the Cistern No. 19 (see *Quarterly Statement*, Jan., 1880, p. 20) is also, apparently, merely a speculation, as there is no literary evidence as to the line occupied by the west wall of Solomon's Temple, nor are any remains of an older rampart known to exist within the present Haram walls.

The identification of the aqueduct west of the Temple enclosure with that constructed by Hezekiah is in the same way hardly satisfactory.

According to the A. V., Hezekiah's Conduit was on the west side of the City of David, which Josephus identifies with the Upper City of his own time (cf. 2 *Sam.* v. 7-9; *Ant.* vii. 3. 1; *Wars* v. 4, 1). According to Keil and other scholars the Hebrew words should be rendered, "westwards to the city of David." Neither rendering would admit of an identification with the aqueduct just mentioned, which is east of the upper city, and which runs north and south. The great rock-cut tunnel running westward from the Virgin's Spring seems more probably the work of Hezekiah, for the Gihon, or "fountain head," whence it brought water, was in the *Nakhal*, or valley, a title which

seems to be invariably applied to the Kedron Valley (2 Chron. xxxii. 30) where the Virgin's Spring wells up.

The identification of the supposed tower at the south-east angle of the Haram is also open to remark.

The "tower that lieth out" (the "projecting tower") was on Ophel, between the Water Gate and the Horse Gate (Neh. iii. 26-28). The Horse Gate, by common consent of various authorities, has been placed south of the Temple. It was *at a corner*, and apparently close to the Royal Palace of Solomon (Neh. iii. 28; Jer. xxxi. 40). The Water Gate may probably be placed near the great shaft discovered by Colonel Warren leading down to the Virgin's Spring, and the Horse Gate at the angle of the Ophel wall south of the Haram. Between these two points Colonel Warren discovered the great outlying tower which he identifies with that mentioned in the Book of Nehemiah as the "tower that lieth out." The supposed tower at the south-east angle of the Haram would seem to be too far north to be identified with the "tower that projected," and moreover it was according to its proposed reconstruction almost flush with the wall, and projecting inwards instead of outwards.

Nothing short of a complete examination of the Haram walls by galleries extending their whole length would suffice to prove definitely the continuity of their structure, and even if such proof were obtained the objection might be raised that the masonry was not *in situ*. However puzzling the minor differences in the masonry may be, and however difficult it may be to explain the reasons for straight joints or sudden changes in the finish of the stones, certain important indications will be acknowledged as controlling any conjectures on the subject.

1st. The dressing of the finished stones on the west, south, and east walls is the same, and serves to distinguish the Haram drafted masonry as a whole from drafted ashlar of the Byzantine period.

2nd. The existence of the north-west rock scarp; of the Tyropœon bridge; and of the Ophel wall joining the east wall of the Haram, corresponds in a most marked manner with the description of the rock of Antonia; the bridge leading to the Royal cloister; and the ancient wall joining the east cloister of Herod's Temple; and affords strong indications of the identity of the three angles of the modern Haram with the corresponding angles of Herod's Temple enclosure.

3rd. The alterations effected in the Temple Area by Herod the Great were so considerable that any theory based on a reconstruction of the site as described in the time of Solomon or Nehemiah must be considered unsatisfactory if it is not in accordance with the descriptions of the site as existing at the later period of the Herodian edifice. It should not be forgotten that between the time of Solomon and that of Herod, a period of time elapsed equal to that separating the reigns of Alfred the Great and Victoria.

#### VIII. Plans.

The plans are of great value as preserving drawings previously

unpublished. They appear, however, not to have been finally checked by Colonel Wilson, owing probably to his absence abroad.

In No. 1 (page 6) a certain number of the observations which I obtained from Mr. Schick are inserted, but this plan is not complete. In addition to the observations outside the east wall of the Haram, which are beyond the margin, several have been omitted, viz., those bearing the numbers 2, 3, 12, 14, 15, 19, 20, 21, 22, 36, 39, 40, 41, 47, 49, 50, 53, 56, 57, 58, 60, 86, 88 in the Register. The observation No. 56 is also given 2287 instead of 2289; and No. 55 appears as 2400 instead of 2409. These omissions do not affect the contours, but observation No. 20 is given as 2420 instead of 2408 (Warren), which materially alters the contours. The observation 2370 west of Wilson's Arch does not agree with contours. It is not in the Register.

The contours appear to be taken from the unpublished plan sent home in 1873 from Jerusalem. The name "Convent of the Sisters of Sion" has been written by mistake to the Barracks farther south.

It does not appear why an area is shaded in the south-west angle of the Haram, while the north-east angle, where no observations have been taken, is not shaded. It should be noted that negative observations have been made in tanks Nos. 19 and 30, and in all the chambers in the south-west part of the platform of the Dome of the Rock, which serve to control the contours in the shaded portion. The question of the lie of the rock in this part of the Haram is, however, fortunately, of very little practical importance, as it is known to be nowhere higher than 30 feet below the level of the Sakrah rock.

In Plan 6A *B'aidha* should be written *Beidha* ("white") according to the Arabic of Dr. Sandretzky. There is no *Ain* in the word.

On Plan 9 the level of the equeduct at its south end should, as above explained, be given as 2406 instead of 2412. At the point B, the aqueduct should also be shown as cut in rock on both sides, as the plan gives the impression of a rock buttress which does not exist.

It is to be regretted that the valuable sections of the east wall have not been published, and an elevation of the Antonia scarp seems also much wanted, which I hope to be able to supply from a sketch made in 1873.

January, 1880.

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[The contour map was taken from the plan sent home by Lieut. Conder, dated July 29, 1873. It was inserted without instructions from Colonel Wilson, in order to show approximately the lie of the ground. The name of Lieut. Conder ought to have been affixed to the plan, which is due to him, and for which he is responsible. It must, however, be understood that its appearance in the *Quarterly Statement* does not mean that these contours have been adopted by Colonel Wilson. The reason for shading the south-west corner will be apparent by comparing Colonel Wilson's with Colonel Warren's lie of rock in Plate 6. Lieut. Conder, in his plan of 1873, differs from both. The observation 2370 west of Wilson's Arch appears on Lieut. Conder's plan, if not on the Register. —Ed.]