

## RECENT DISCOVERIES IN JERUSALEM.

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### I.

#### LARGE CISTERN UNDER THE NEW GREEK BUILDING SOUTH-EAST OF THE CHURCH OF THE HOLY SEPULCHRE.

IN several of my former reports mention is made of the discovery of a large cistern under the new Greek building erected on the site of the old Byzantine market (*Quarterly Statement*, 1888, pp. 17, 58), south of the Abyssinian Convent and St. Helena's Chapel.

Two of the three mouths of this cistern were known, but the extent and depth of it were unknown and could not be ascertained until the earth and silt, of which it was full, were removed. This was done by the Greek Convent about a year ago, some eight months being occupied in clearing the cistern out, and as the progress of this work went on the enormous construction astonished everyone who had seen it.

I have examined and measured it thoroughly in all its parts; the result I give in the accompanying plans.

1.—Plan of the bottom of the cistern.

2.—Plan of the roof over the double arches.

The cistern was found to be 102 feet long (east to west), and 34 feet 6 inches wide. The depth at the western end (measuring from the flooring of the new shop) is 34 feet, and at the eastern end 50 feet 6 inches; the bottom is all rock and very uneven.

At the west end is a flight of steps, the last four being cut out of the rock; there are 18 piers in two rows at equal distances, two of which are on the steps. The bases of the piers are round, measuring 3 feet in diameter, and composed of one or two stones from 1 foot 6 inches to 5 and 6 feet in height; the upper part of these piers is not round like the bases, but flat on two sides and round at the others.

I am unable to give any reason for this peculiarity in the shape of the upper stones, unless they were part of the remains of a former building, or more probably of the second wall.

The piers are connected at the top by arches, each arch from east to west consisting of seven well cut stones, and from north to south usually of nine stones without the springing stone, the back being filled up with masonry, over which is a layer of flag stones 4 feet 2 inches square, forming a platform on which are erected three rows of square piers, 18 in each row, each pier measuring 2 feet 4 inches by 2 feet 4 inches and 5 feet in height, and a little over 3 feet apart, each alternate pier standing over one of the lower ones. The spaces between them are filled up with earth, and over the whole is another layer of flag stones similar to those below, on which the walls of the new Greek building are erected.

The steps, with the exception of the four large ones, are 1 foot in height and 1 foot 3 to 4 inches in width. They led originally in a straight line to the top, but now the upper and narrower part turns eastwards and leads into the shop. On account of the steps one of the flag stones is placed on the top of another.

From the street a gutter leads the surface water into the cistern, falling on a short pillar erected on the bottom of it to soften the fall and prevent injury to the cement when the water is low.

The cistern has now been entirely repaired, but as some of the old cement was still clinging to the sides of it, I could not ascertain whether the walls were all masonry or not; possibly a portion may be scarped rock, but I doubt it.

The rock surface at the bottom is very uneven, it presented the appearance of stones having been quarried there; it falls greatly towards the east where the cistern is deepest, and rises to a point near the middle to within 10 feet of the springing of the arch from the top of the pier.

It is remarkable that the deepest point of the cistern is about the same level as the rock of the shaft I had sunk on the Russian property. The new cistern sunk in the *débris* by the Russians is about 75 to 80 feet east of it, and I have come to the conclusion that the space between the old and new cisterns is nothing else but *débris* and earth.

At a point in the yard or court in front of the Church of the Holy Sepulchre the rock is only a few feet from the surface, and along the side of the Convent of Abraham there is a kind of cesspool, which I examined and ascertained the form of the rock some years ago.

The question now arises, when and by whom was this enormous cistern constructed? My impression is that it was made when Constantine built the Church of the Holy Sepulchre, as the work of it is clearly neither Jewish, Mohammedan, nor Crusading, and the vaults do not resemble the latter work in the Muristan.

It may also have formed a part of the trench when the second wall ran through this neighbourhood.

The Bordeaux Pilgrim, A.D. 333, visiting Jerusalem when the Church was built, speaks of two cisterns, one to the north and one to the south of the Basilica of Constantine; the south one will be the large cistern described above, and the north one that of "Helena," so called, under the Coptic Convent, which, however, is in the greater part hewn in the rock, as it formed at that time the cistern of the Castle erected there.<sup>1</sup>

<sup>1</sup> Mr. Schick is preparing sections and other drawings showing the details of this important discovery, and these, with further notes on the subject, will appear in the next *Quarterly Statement*.

## II.

## THE MURISTAN.

A BRIEF history of the Muristan, with plans, is given in *Quarterly Statements*, 1872, p. 100, and 1875, p. 77. Sir Charles Warren, in his "Recovery of Jerusalem," describes the excavations he made there; it is also described in many other books in various languages so that there is no need for me to do it once more, but I would only wish to add that the name by which the place is known is not Arabic, but Persian and Turkish, signifying an institution or hospital for insane people, to which it was devoted by Salah ed Din after it was wrested from the Christian knights.

When the eastern part of the place was handed over in 1869 by the Sultan to the King of Prussia (the late Emperor William), the great accumulation of *débris* was partly removed, exposing the ruins that lay under it. I examined them and made a plan as far as the rubbish had been cleared away (*Quarterly Statement*, 1872, p. 100). Three years later the work proceeded, and I made a second and more extended plan, together with a section showing the surface of the rock, which I gave to Captain Conder, and which was used, together with a section of the lie of the rock, by Sir Charles Warren in his great Portfolio of Plates (No. 59). Since that time excavations have been carried on at intervals exposing more vaults, ruins, &c., which I noted and added to the plan as they appeared. Most unfortunately, in clearing away the *débris* for the foundation of a new building I found, to my great sorrow, that on the old masonry being reached the workmen at once began to lay the stones of the new walls on it, thereby preventing any further examination of the masonry below. The rock was not reached in any one point.

On the west side of the "Church Maria Major" is an underground chamber 17 feet from east to west, and 14 feet wide, covered with a cross vault; the pier is built of large and well-hewn stones, the walls are not so well done. But the interesting part is a rather flat arch just under the vault, 2 feet 6 inches wide and 1 foot 8 inches thick, consisting of about twelve well dressed stones, in which are pierced two holes of about one foot square.

West of this chamber, and on a somewhat higher level, a flight of broad steps was found leading up to a kind of platform or terrace, having near its centre the mouth of a cistern, which, on being cleared of earth, was found to be 26 feet long by 15 feet wide and 30 feet deep, and rock at the bottom. On the west side of this terrace are some steps of well-hewn stones; in the corner is a quarter pillar, and south of it a half projecting pillar; between these was originally an arch and an opening, now walled up. To the west is a vault joining the Gethsemane convent, having a large arched opening in the south wall and three small ones on the north.

Close to the steps is a small chamber with two recesses in the wall,

which I thought would lead to a tomb, but the excavations were not carried far enough to determine this, and the parts were partly built over again according to the new plan.

South of the cistern are some vaults, built of very small stones, with very thick piers, of no great interest, excepting that a door leads from them to a long row of vaults on the same level, and also by some steps to the roof over them. On the top of this roof or terrace, and right over a thick pier, is the base of a circle of twelve pillars, which I suggest to have been a font, as there is no evidence of any counter piers or similar bases. The western side of this terrace has a wall reaching to a higher elevation, having two openings in it for lighting the vaults below. Some steps lead to another terrace higher up, on which once stood a series of very small chambers. The best preserved of them has been apparently an oriental bath, with a beautifully ornamented door.

East of the cistern and vaults already mentioned there appears to have been a narrow lane, partly arched over, of the Crusading period, and near the end of this lane,<sup>1</sup> on the west side, is a block of inferior masonry having five small cemented tanks with a hole in the bottom of each — the two outer ones circular, the other three are 5 feet square and 4 feet deep.

For illustration of the connecting pipes with the cistern found by Sir Charles Warren in the year 1867, *see* large Portfolio, Plate 50, number 36.

Careful examination of the long cistern and some arches in the German part brought me to the conclusion that a street ran through these parts in Jewish times, and had been partly hewn in the rock. I hope that in clearing away the portions necessary for the construction of a new street between the German and Greek properties, some additional information will be obtained.

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### III.

#### CRUSADING RUINS ON MOUNT SCOPUS.

AN Effendi family of Jerusalem have recently built two new houses to the north of the Tombs of the Kings, on the lower slope of Mount Scopus, to the west of and close to the Nablus road, immediately north of the spot where the latter makes a sharp turn to the east and between the numbers 2543 and 2555·8 on the Ordnance Survey Map. Another member of this family is about to build another house, opposite those already erected and to the east of the road. On clearing the ground he discovered a cistern and also a small ruined building with a mosaic floor and a large cross cut in a stone slab. On visiting the spot I found a boundary wall nearly

<sup>1</sup> In a plan published by Count de Vogué, at page 174 of his "Eglises de la Terre Sainte," a lane is marked between the Church of Ste. Marie la Grande and the Muristan.

6 feet thick, enclosing a piece of ground about 130 feet long on the west, 125 feet on the east, a little more than 100 feet on the north, and 142 feet on the south. The wall has been destroyed in some places, only a heap of stones being left. The ground is level from west to east, but rises slightly from south to north. About the middle of it was found a mosaic pavement of coloured stones. Traces of walls are still visible. Apparently they had formed a small room or chapel, measuring about 16 or 17 feet. The entrance was on the south side; the threshold is still *in situ*, with the sockets in it for the door. The doorway was only 3 feet 2 inches broad. Running from it across the interior of the building was a pavement 2 feet 5 inches wide, consisting of seven stone slabs, carefully hewn and smoothed. The first of these had been recently removed, and made into a well mouth. Nothing was found under it. The fifth and sixth slabs are longer than the others, and on the sixth is engraved a cross 3 feet long, with a cross bar of about 2 feet. The cutting is 2 inches deep and about 5 inches wide, but the limbs of the cross are widened at the extremities and the ends cut so as to form sharp angles. The cross is embraced by a round rod or cord, of 1 inch thickness. The bearing is north  $17^{\circ}$  east. As the floor of the chamber is level, whilst the ground outside rises towards the north, its northern wall is a rock scarp several feet high. The earth on the east was not yet removed. On the western side two layers of stones are seen to remain, and on the south side one. The stones are 1 foot 4 inches long and 1 foot high, not well dressed, and apparently intended to be plastered over on the inner side. It is remarkable that the west wall does not run at a right angle but is slanting, so that at first I thought it to be a later restoration. This, however, does not seem to be the case. To the south-west of this wall is a ruin with thick walls and formerly vaulted. The whole settlement appears to be Crusading, though there may have been some Byzantine buildings at an earlier date, and to these I would ascribe the mosaic flooring and the rock scarp. South of the court is a small rock-hewn cistern. Along the western boundary it is easy to recognise the ancient road; the present road is 60 feet farther to the west.

The question now arises, What was this building? Was it a tomb or a chapel? Or was it a tomb and chapel? It is impossible at present to determine. It may be that under the slab with the cross a tomb may be found. But I doubt it, as in that case a path paved with similar slabs would not have led up to it. To me it seems that where the cross now is an *altar* once stood, and that the enclosure was uncovered, like Joseph's tomb at Nablus, or only roofed with wood, as the walls are not strong enough to support a vault. The other ruin would then be the lodging of the guardian of the place. Perhaps some distinguished knight may have fallen or been buried here.

3. With regard to the Pool Bethesda, I have nothing new to communicate, as very little work has been done since I sent my last report. I am told that after Easter the excavations will be resumed. The same is the case at the Latin Patriarchate.

4. A French congregation has bought a piece of ground on the slope of the hill east of Neby Daûd, half way down, and are now excavating there. I went to the place and inspected what has been found, and am making drawings and a report, which I hope to forward by next mail.

5. The Greek bishop also is excavating on the top of Mount Olivet (the Galilee part). He has invited me to go and see what has been done, promising to show me everything.

C. SCHICK.

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#### IV.

##### DISCOVERIES NORTH OF DAMASCUS GATE.

THE year before last a rock-cut channel was discovered in the ground belonging to the Dominicans, north-west of the hill above Jeremiah's Grotto, a little to the east of the ruined church described at page 388 of the Jerusalem volume of the "Survey of Western Palestine." Thinking it might prove to be an aqueduct connected with the ancient water supply of the city, Mr. Schick made some excavations on the spot, and discovered that the trench, which is cut 14 feet deep in the rock, runs 44 feet in a northerly direction, then turns at a right angle towards the east, and at a distance of 29 feet makes another turn towards the south, in which course it runs for 44 feet, and then turning westward for 29 feet joins the southern end of the portion first described, thus enclosing a solid mass of rock, measuring some 40 feet by 25 feet. The trench, therefore, is not part of an aqueduct, but, as Mr. Schick now thinks, represents the commencement of the work of excavating a tank or cistern, and is a valuable illustration of the way in which these receptacles for water were made in ancient times. After visiting the place in the month of February of the present year, Mr. Schick writes: "As the ground where I excavated for the supposed aqueduct is now entirely cleared, it is easy to see that when this deep groove was hewn in the rock it was intended to make a tank or pool, and to quarry stone for building at the same time. It is evident that this was done in the Jewish period, and that the Christians afterwards filled up the cutting." Another pool was afterwards discovered by the monks to the south of this incomplete one examined by Mr. Schick, and separated from it by a wall of rock 5 feet thick. This pool is also cut in the rock, but, owing to the shelving of the rock, the south-western corner is formed of a wall of hewn stones, amongst which are two pieces of pillar shafts, which Mr. Schick regards as proof that the pool was in use in Crusading times.

The whole ground was measured, and a plan of the ancient remains sent home by Mr. Schick. He finds remains attributable to five epochs, namely, the Jewish, Byzantine, Crusading, Mohammedan, and modern. To the Jewish period belong, he considers, the rock-cut tombs at the foot

MONTHLY METEOROLOGICAL TABLE DEDUCED FROM OBSERVATIONS TAKEN AT SARONA BY HERR J. DREHER IMMEDIATELY NORTH OF THE GREAT ORANGE GROVES OF JAFFA, SYRIA, 1½ MILE FROM THE SEA SHORE, ON SANDY SOIL, AND ABOUT 50 FEET ABOVE SEA-LEVEL. LATITUDE 32° 4' N., LONGITUDE 34° 47' E.

By JAMES GLAISHER, F.R.S.

Months, 1884.	Pressure of Atmosphere in Month. Corrected to 32° Fahrenheit.				Temperature of the Air in Month.							Mean Reading at 9 a.m.			Vapour, 9 a.m.			Degree of Humidity.	Weight of a Cubic Foot of Air.	Wind.								Mean Amount of Cloud.	Rain.		
	Highest.	Lowest.	Range.	Mean.	Highest.	Lowest.	Range.	Mean of all Highest.	Mean of all Lowest.	Mean daily Range.	Mean.	Dry Bulb.	Wet Bulb.	Dew Point.	Elastic Force of Vapour.	Weight in a Cubic Foot of Air.	Additional Weight required for Saturation.			Relative Proportion of									Calm, or nearly Calm.	Number of Days on which it fell.	Amount Collected.
																				N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.				
January .. ..	in. 30·262	in. 29·678	in. 0·584	in. 30·010	71·0	32·0	39·0	60·2	40·9	19·3	50·5	51·3	49·0	46·6	grs. 319	grs. 3·6	grs. 0·7	84	grs. 543	0	1	1	5	14	1	1	1	7	6·6	14	ins. 6·69
February .. ..	30·230	29·700	0·530	29·945	65·0	41·0	24·0	60·3	46·2	14·1	53·3	53·6	51·7	49·9	358	3·7	0·6	87	540	2	3	0	3	13	0	1	1	6	7·3	18	6·09
March .. ..	30·133	29·597	0·536	29·892	79·0	42·0	37·0	66·5	48·3	18·2	57·4	61·3	57·2	53·7	412	4·6	1·5	76	530	1	1	2	5	7	5	4	1	5	5·3	10	1·49
April .. ..	30·013	29·505	0·500	29·723	97·0	46·0	51·0	77·8	53·4	24·4	65·6	71·7	62·2	55·0	435	4·7	3·7	56	517	0	4	3	1	3	7	4	2	6	5·7	4	1·02
May.. ..	29·946	29·670	0·276	29·841	98·0	49·0	49·0	77·2	57·0	20·2	67·1	72·6	65·8	60·7	533	5·7	2·9	66	517	3	0	0	0	1	10	5	10	2	5·0	2	0·49
June .. ..	29·930	29·703	0·227	29·828	97·0	58·0	39·0	84·4	63·7	20·7	74·0	80·1	69·6	62·4	564	6·0	5·0	55	510	1	1	0	0	0	6	14	5	3	1·9	1	0·02
July.. ..	29·899	29·600	0·299	29·717	96·0	61·0	35·0	85·0	66·0	19·0	75·5	81·2	72·4	66·5	649	7·0	4·4	61	507	0	0	0	0	0	11	18	0	2	3·4	0	0·00
August .. ..	29·849	29·582	0·267	29·707	90·0	63·0	27·0	86·0	68·9	17·1	77·4	82·5	73·8	68·0	685	7·3	4·6	62	505	0	0	0	0	1	13	8	4	5	3·0	0	0·00
September .. ..	30·015	29·665	0·350	29·817	86·0	61·0	25·0	83·7	64·3	19·4	74·3	79·8	70·6	64·3	603	6·4	4·5	59	510	2	1	0	0	3	13	4	2	5	3·8	0	0·00
October .. ..	30·002	29·783	0·219	29·900	100·0	55·0	45·0	81·8	60·5	21·3	71·2	78·6	67·2	59·3	508	5·5	4·9	52	513	1	1	0	3	5	6	0	2	13	4·0	5	1·16
November .. ..	30·063	29·832	0·231	29·952	79·0	47·0	32·0	72·8	52·9	19·9	62·8	59·8	58·1	56·6	458	5·2	0·7	90	533	1	0	0	5	6	0	1	4	13	4·2	8	1·32
December .. ..	30·143	29·846	0·297	29·980	82·0	38·0	44·0	70·9	48·6	22·3	59·8	59·9	55·4	51·5	381	4·2	1·6	73	533	0	7	2	4	1	0	0	1	16	3·7	3	0·45
Means .. ..	30·040	29·680	0·360	29·859	86·7	49·3	37·3	75·6	55·9	19·7	65·7	69·4	62·8	57·9	491	5·3	2·9	68	521	Sum. 11	Sum. 19	Sum. 8	Sum. 26	Sum. 54	Sum. 72	Sum. 60	Sum. 33	Sum. 83	4·5	Sum. 65	Sum. 18·73

Number of Column .. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

of the hill over Jeremiah's Grotto, one of which was regarded by the late General Gordon as the tomb of our Lord, also some rock-cuttings, a quarry, and several of the rock-hewn cisterns. To the Byzantine period he attributes the church above alluded to, some walls and thresholds of doors, a group of three tombs partly hewn in the rock, some fragments of pillars and pieces of mosaic pavement, and adds that the flooring of the Crusading buildings lay about 4 feet 6 inches higher than that of the Byzantine structures, so that the rock-hewn channel and mosaic pavements were covered by it. "A characteristic feature of Crusading work," Mr. Schick writes, "is presented in the long vaults, four of which are in great part still standing north of the Byzantine church. They were originally more than 75 feet long and are only 23 feet wide. Such vaults are always found on the settlements of the Crusaders, some larger, some smaller, and either only one or more in number. They get light only from the two ends and from the door and windows over the door. The vaulting is always something more than a semicircle, and more or less pointed. There are a few air-holes, like chimneys, in the roof. They appear to have been used as magazines for various kinds of goods, sleeping places for pilgrims, and even as stables. A long narrow pit, formerly, as it seems, a cistern, or rather channel for rain water, was arched over by the Crusaders and made the main sewer of their establishment." (*See Quarterly Statement*, 1883, p. 241.)

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## METEOROLOGICAL OBSERVATIONS.

SARONA, 1884.

THE numbers in column 1 of this table show the highest reading of the barometer in each month; the maximum for the year was 30·262 ins., in January. In the years 1880 and 1881 the maximum was in January, as in this year, in 1882 in February, and in 1883 in December; the mean of the four preceding highest pressures was 30·215 ins.

In column 2, the lowest reading in each month is shown; the minimum for the year was 29·505 ins., in April. In the year 1880 the minimum was in April, in 1881 in February, in 1882 in July, and in 1883 in January; the mean of the four preceding lowest pressures was 29·521 ins.

The range of barometric readings in the year was 0·757 inch; the mean of the four preceding years being 0·694 inch.

The numbers in the 3rd column show the range of readings in each month; the smallest, 0·219 inch, was in October, and the largest, 0·584 inch, in January.

The numbers in the 4th column show the mean monthly pressure of the atmosphere; the greatest, 30·010 ins., was in January. In the years 1880, 1881, and 1882, the greatest was in January as in this year, and in 1883 was in February; the smallest, 29·707 ins., was in August. In the years 1880, 1882, and 1883, the smallest was in July, and in 1881 in August.