

There is, however, the fact to be ceded that the pilgrim Theodorich (c. 1172 A.D.) says, in describing his tour from west to east, outside the walls of Jerusalem,¹ "before you reach the Northern Gate you find, upon a hill, the Church of St. Stephen, the protomartyr," &c., &c.

The pilgrim Antoninus (c. 570 A.D.) makes a similar statement, so that we have his description of the site of the ancient church before the destruction of the churches by Chosroës, and Theodorich's description to the same effect after its rebuilding by the Crusaders.

These accounts would, apparently, place the church on the hill to the west of the Damascus road and away from the Skull Hill, the position being that suggested by Dr. Chaplin, in the *Quarterly Statement* for 1876, page 9, and very close to the Tomb which Major Conder has suggested as being very probably that of Our Lord.

Some of the other pilgrims appear to support this view, but others place the site of the stoning and of the church in entirely different positions from the above, and the various statements are otherwise singularly confused and at variance with each other.

They are given clearly, and collated, in the Appendix A. to the description by the Abbot Daniel [P. Pilgrims' Test. Soc.], and I will not attempt to reconcile them.

All that can, I think, be said at present is that we have no remains except those of the church which I have above described, which appear to fulfil the conditions of the Empress Eudocia's Church.

The sarcophagus which was found on the Western Hill (V. *Quarterly Statement*, 1876, page 9), though of great size, was, I believe, quite destitute of ornament, and not likely to be that of an Empress.

The position of her sarcophagus may possibly be indicated by the chamber to the south of the church entered from it by the door H.

T. HAYTER LEWIS.

THE HOLY SEPULCHRE.

By MAJOR WATSON, R.E.

IN an interesting note by Mr. Simpson in the *Quarterly Statement* for April, he has alluded to the idea that part of the original rock can be seen in the entrance to the so-called Holy Sepulchre, and has pointed out that this appears to require authentication. Having heard a similar statement made on several occasions, I took the opportunity when recently in Jerusalem, to make a careful examination of the so-called tomb with a view to ascertaining whether any rock was visible or not. After doing so I was

¹ Palestine Pilgrim's Test. Soc., page 43.

quite convinced that no rock could be seen at any part of the structure. At one point of the arch, above the entrance inside, there is some plaster or cement of a brown colour, which might possibly be mistaken for rock, and perhaps this gave rise to the idea. The attendants at the Sepulchre were positive that no rock was to be seen, and stated that they believed that the tomb was below, and completely concealed from view by the pavement and by the horizontal marble slab, which is well represented in Mr. Simpson's sketch. There is a crack or joint in the centre of the slab, also shown in the sketch, and it is said that the holy fire comes up through this crack from the tomb below. But of this there is no satisfactory evidence.

The true position of the actual rock cannot be ascertained without removing the slab, which of course would not be allowed until it needs repair. It is to be hoped that if it is ever taken up for this purpose, some intelligent resident in Jerusalem may have an opportunity of examining the substructure.

ON THE RELATION OF CERTAIN ARCH SPRINGINGS FOUND WITHIN THE AREA OF THE TEMPLE OF JERUSALEM.

By T. WRIGHTSON, Member Institute Civil Engineers.

ON the 26th February in this year I visited "Solomon's Stables," under the Temple area in Jerusalem, when my attention was drawn to an ancient arch springing, which occupied the position shown at A. B. on the accompanying plan, No. I (which is reduced from the Ordnance Survey.) I was informed by my dragoman that it had only been uncovered by the Turks within a few days, in moving the rubbish from the western to the eastern part of the stables.

The much more ancient appearance of the masonry as compared with the lighter and more recent arching forming the arcades of the stables which in this part rested upon the ancient springing, interested me, and hearing that only one or two Europeans had examined it before my visit, I was led to observe its peculiarities more than I should otherwise have done.

The arch sprang eastwards from a wall running north and south and forming one of the boundary lines of the somewhat irregular area of the "stables." The wall at this part forms a retreating recess 50 feet long, and is shown on the Ordnance plans made by Sir Charles Warren. Its face is parallel to, and 148 feet east of, the western wall of the passage leading north from the Triple Gate and about 187 feet west of the external face of the east wall of the Temple area.

The appearance of this venerable relic, is, I understand, to be described and illustrated by Herr Schick in the July *Quarterly Statement* of the Palestine Exploration Committee, so that I need not do more than



[From a Photograph by G. R. Lees.]

SPRING OF ARCH IN "SOLOMON'S STABLES," RECENTLY DISCOVERED.

state that the springing is supported by massive masonry which occupies the whole length of the 50 feet face. Many of the springing stones have been removed, but it is obvious from the character of the supporting

masonry that the south corner was originally the termination of the springing in that direction. At the north end a wall running east and west is built up to the face of the old masonry so that I could not be certain of this angle being the termination of the old arch northwards.

I had not at this time seen the springing at the south-west corner of the Temple area known as Robinson's arch, but when visiting this the following day I was greatly impressed by the similarity of the two springings, so much so that I could not divest my mind of the idea that they had originally formed springings of a continuous series of arches. What appeared to me to be against such a supposition was that the distance from the south end of Robinson's arch was only 39 feet from the outside of south wall at the south-west corner of the Temple boundary, whereas the distance of the south end of the newly discovered arch was 57 feet from the inside of the south wall, or 65 feet from the outside (allowing 8 feet thickness of wall as scaled from the Ordnance map of the Temple area, $\frac{1}{500}$ scale.)

It seemed difficult to account for such a considerable deviation from parallelism with the present south wall.

In thinking the matter over I came to the conclusion that as the last found springing was stretching forward in an eastward direction it was possible that on the east wall, which was only 187 feet from the springing, there might be some indication of the end of an arcade if such a continuous series had ever existed.

I had to leave this interesting speculation to go down to the valley of the Jordan and the Dead Sea, but in returning a few days afterwards over the Mount of Olives I thought I saw the object of my search in a sharp vertical line near the south-east corner of the Temple wall on its eastern face, a little to the right of what is known as Christ's Cradle.

The same afternoon I obtained a "permet" to again visit Solomon's Stables, and took more accurate dimensions of the position of the new arch. I then went round to the outside of the east wall, and measured the distance of the strong vertical mark (which I had seen from Olivet) from the south-east corner. This mark is formed by a retreating offset in the masonry, which has been thought by some to mark the limit of a supposed tower at the corner of the Temple, but which resembles a similar offset at the west wall which marks the limit of the southern end of Robinson's arch. On laying down upon the Ordnance Survey the three positions, viz., the southern end of Robinson's arch, the southern end of the lately discovered arch, and the offset in the east wall, I found that they were exactly in a straight line on the plan. On examining the stones to the north of this offset I was surprised to find another ancient arch springing,¹—two stones only remain, occupying 23 feet of length,

¹ See "Ordnance Survey of Jerusalem," Notes, page 25, and *Quarterly Statement*, 1880, pages 9-65.—[Ed.]

and coming within a few feet of the offset, and had apparently, at one time, extended to the offset. The springing was sailing out eastward, in the direction of the Mount of Olives. I afterwards found that this arch springing and the offset had been fully illustrated in the splendid set of drawings of the Temple wall by Sir Charles Warren. (Jerusalem volume of the "Memoirs.")

What I wish to draw attention to is the remarkable fact that the southern ends of these three springings are all in one line, and in a line quite out of parallel with the south wall, being 71·6 from the south wall at the eastern end, and only 39·3 from the south wall at its western end.

Another observation I have made appears to lend additional importance to this fact. Following my line westward it will be seen that it cuts the western side of the Triple Gate passage 60 feet 6 inches north of the exterior of the south wall. (See Plan I.) I have also marked the position on Plan No. II., which is a section of the Triple Gate, taken from "The Recovery of Jerusalem," page 230. It will be seen that the point of intersection comes immediately above a large stone, which is described as the foot of an engaged column, and considered to be *in situ* by Sir Charles Warren. It is illustrated in the same plate in detail.

This western wall of the Triple Gate passage is very ancient, and I think the explanation of this curious stone may be that one of the arches of the supposed series sprang from this wall eastwards, and formed an arched gateway into the Temple area, and that the peculiar shaped stone is the lowest and only left course of a pilaster or architrave designed to hide the more homely outline of the arch, and to give the entrance to the Temple a more noble and imposing appearance. We have therefore four interesting points, viz., the southern ends of the three arch springings described, and the curious stone in the Triple Gate entrance, all in an exactly straight line, about 922 feet long. We also have the fact that the breadth of Robinson's arch, 50 feet, corresponds with the depth of the recess from which the newly found arch springs.

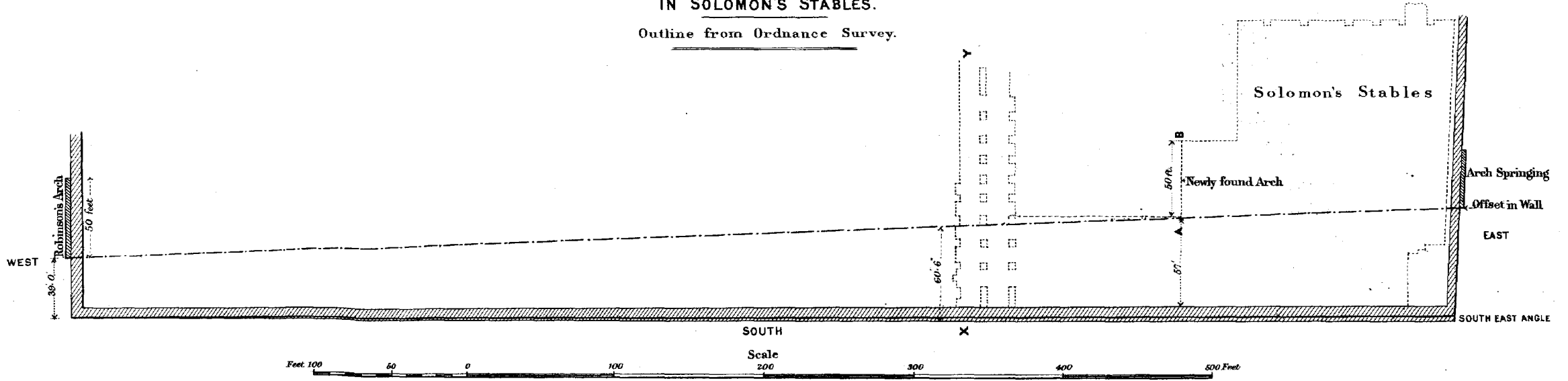
These facts, coupled with the similarity in the appearance of Robinson's and the recently found arch springing, seem to favour the theory of a continuous series of arches having joined the eastern and western walls of the sanctuary at some early period.

If such a continuous arcade existed, whether this were a substructure or otherwise, it seems difficult to imagine that the builders could have erected so large a work without reference to the line of the sanctuary wall (an equally great work) lying only a few yards to the south, and if subsequent research proves the theory of the continuous arcade it will probably justify the view that the present southern wall was built at a later period and that it was an extension of the area of an older temple.

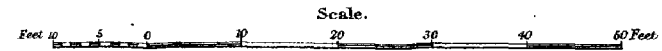
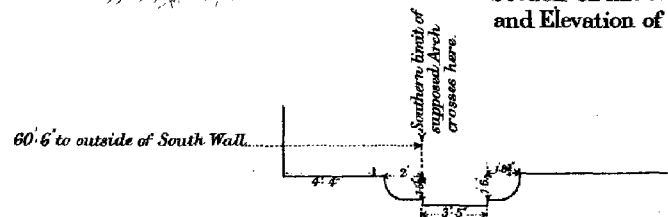
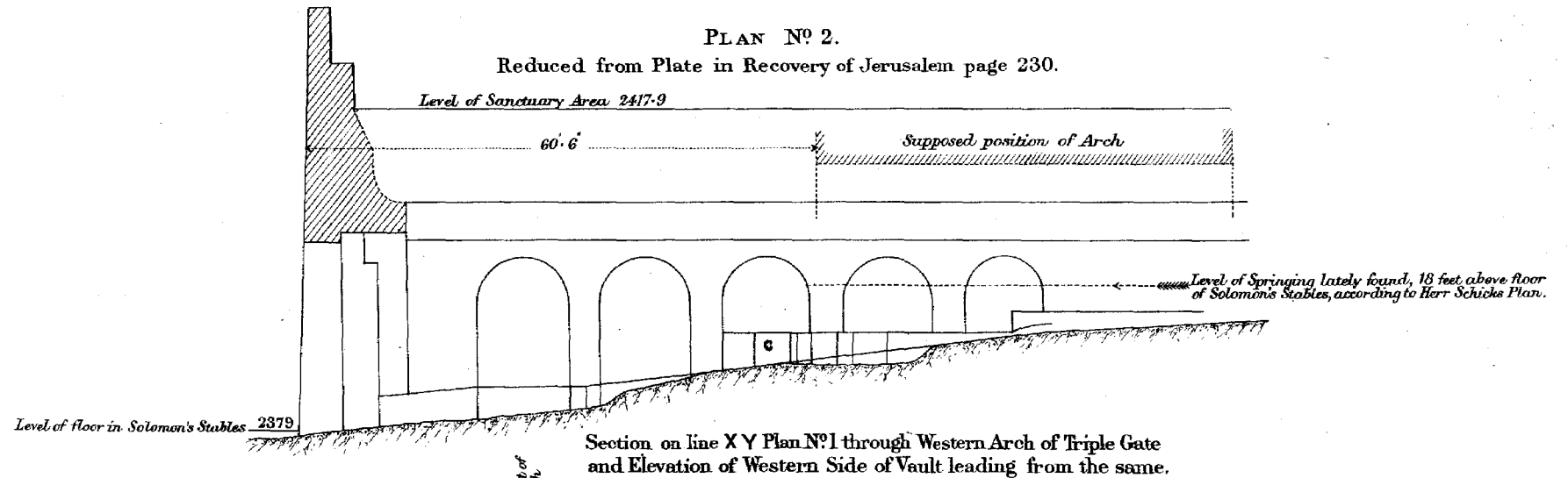
The level of Robinson's arch springing is 2387·5, that of the new arch springing taken by scale from Herr Schick's sketch 2397, or 18 feet above the level of floor of "Solomon's Stables."

MR WRIGHTSON'S PLAN (Nº1.) SHOWING POSITION OF NEWLY DISCOVERED ARCH IN SOLOMON'S STABLES.

Outline from Ordnance Survey.



PLAN Nº 2. Reduced from Plate in Recovery of Jerusalem page 230.



The level of the springing from east wall ....	....	....	....	2372
„ floor of Solomon's Stables ....	....	....	....	2379
„ sanctuary area at this point ....	....	....	....	2418

With regard to the difference of level between the first two, viz., 9.5 feet. This is not at all incompatible with the floors which each arch supported being at the same level.

In crossing the deep Tyropean valley a longer span would be much more economical of material where the piers supporting the arches were so tall.

As the face of the rock rises, the piers supporting the arches would get shorter, and it would be much more economical under such circumstances to make the spans less; besides which shorter spans would be more convenient for supporting the weight of buildings above, which consideration would not apply to the valley arches. In making the spans less the springings would rise in level.

From Herr Schick's plan it appears there is a vertical distance of 21 feet from the level of the newly found springing to the level of the temple area.

If we assume semi-circular arches (as in the case of Robinson's and Wilson's, *see* plates on pp. 81 and 119 "Recovery of Jerusalem") this 21 feet would be made up of the thickness from crown of arch to level of Haram area, added to the radius of the arch span.

If we assume 10 feet of thickness we should want 11 feet of radius, or 22 feet span. If we assume a greater or less thickness, it reduces or increases the span accordingly. Thus, if we assume 12 feet thickness, we have 9 feet radius left, or an 18 feet span.

With regard to the springing from the eastern wall: Sir C. Warren explored the ground opposite up to 50 feet from the wall, in the hope of finding a pier as had been done in the case of Robinson's arch.

He says ("Recovery of Jerusalem," p. 151): "We were not far from the rock when searching for this pier, but not quite on it; it cannot, therefore, be said for certain that there was no pier for a bridge at this point, but the probabilities are against it." Colonel Wilson in his paper on the Masonry of the Haram Walls, Palestine Exploration, *Quarterly Statement*, January, 1880, says: "A few feet to the north of the offset there are two stones which form the springing of an arch and extend over a length of 18 feet. These stones do not appear to be *in situ*," and he dismisses the idea that they could have formed part of a bridge over the Kedron.

If a distinct relation of position is proved as between Robinson's arch and this eastern wall springing, it is a question whether Colonel Wilson's conclusion that the stones are not *in situ* can be maintained, and this taken in connection with Sir C. Warren's admission that he had not gone down to the rock, and could not say for certain that there was no pier, appears to rob the investigation of its conclusiveness.

I would only remark that if ever the question should be again

seriously investigated, the springing being 46 feet below the Haram area level would imply a longer span of arch than that of Robinson's, unless the roadway were at a lower level than the Haram area or the thickness over the crown of the arch much greater.

The chief observations in the above paper were communicated to the Palestine Exploration Secretary, also to Mr. Hanauer, in Jerusalem, in a letter dated March 6th.

Norton Hall,
Stockton-on-Tees,
May, 1891.

COMPARISON OF THE MONTHLY MEAN HIGHEST
AND MONTHLY MEAN LOWEST DAILY TEM-
PERATURES OF THE AIR, AND MONTHLY
MEAN DAILY RANGE OF TEMPERATURE IN
PALESTINE AND ENGLAND IN THE TEN
YEARS ENDING 1889.

By JAMES GLAISHER, F.R.S.

THE following discussion of the temperature observations at Sarona and Blackheath is in continuation of those published in the *Quarterly Report* for April, 1891, pages 163—178.