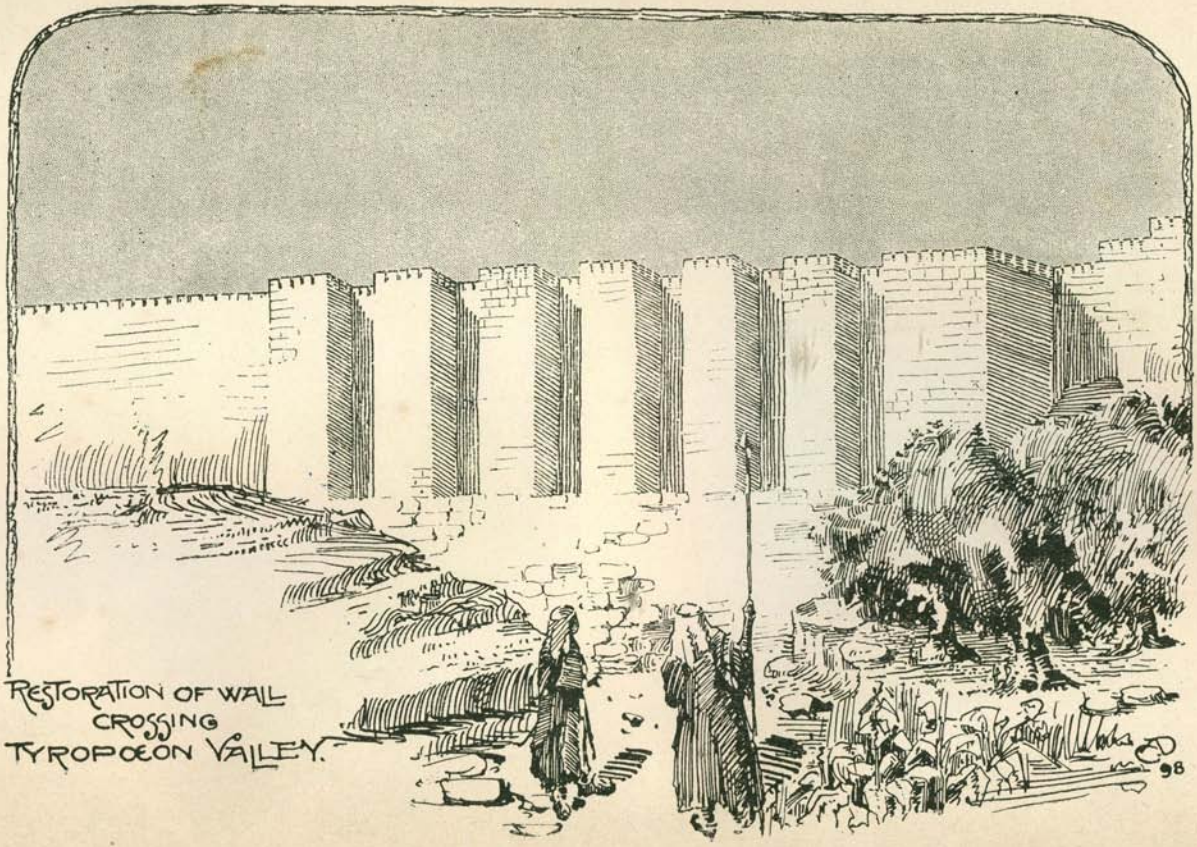

RESTORATION OF WALL CROSSING TYROPOEON VALLEY.

EXCAVATIONS AT JERUSALEM,

1894—1897.

BY

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AUTHOR OF 'A MOUND OF MANY CITIES.'

PLANS AND ILLUSTRATIONS

BY

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TO

MAJOR-GENERAL SIR CHARLES WARREN, K.C.B.

My dear Sir Charles,

When as a lad in my father's summer home in the Lebanon I used to listen to the account of the excavations you were conducting in the Holy City, little did I think that I should have the honour, many years after, of taking up your work. While digging at Jerusalem, Mr. Dickie and I had the luck to employ two of your old workmen, and we found that the mighty deeds of "the Captain" had taken their place in the local folk-lore. We feel great pleasure in dedicating this volume to our predecessor in the work.

Faithfully yours,

F. J. BLISS.

CONTENTS.

CHAPTER I.

THE WALL FROM THE PROTESTANT CEMETERY TO THE JEWISH CEMETERY.

CHAPTER II.

VARIOUS DISCOVERIES ON THE WESTERN HILL.

CHAPTER III.

THE WALL FROM THE JEWISH CEMETERY TO OPHEL.

CHAPTER IV.

THE TYROPŒON VALLEY.

CHAPTER V.

THE CHURCH AT THE POOL OF SILOAM.

LIST OF ILLUSTRATIONS.

LIST OF PLATES.

LIST OF PLANS.

INTRODUCTORY NOTE.

THE work of preparing this volume has been one of co-operation throughout. While the main task of writing the letterpress has fallen to me, yet the form taken by many of the sentences would have been very different had Mr. Dickie not been associated in the excavations. Not only have I been indebted to him for technical details, but most of the conclusions regarding the relations of the various discoveries have resulted from discussions carefully thrashed out between us. In laying out new work, we always went over the ground together, and in the superintendence thereof the responsibility was shared. When I was laid aside by illness he took the sole charge, and in case of his absence for the same cause I was responsible for the measurements. This close association begun in the shafts and tunnels at Jerusalem has continued here in London, where we have worked side by side in the preparation of the memoir.

Our chief work was the tracing of the lines taken by the south walls of Jerusalem during various periods, although unexpected clues led to other dis-

coveries. Accordingly, I begin in Chapter I. at the point where we first found the wall, and proceed to follow it continuously. This is the logical rather than the historical order, for, as will be seen in Chapter X., entitled "The Story of the Expedition," we were sometimes forced by practical consideration to abandon a certain point, and to pick up the line further on, returning later to the old clue. In the earlier chapters I have endeavoured to confine myself to a careful description of the remains, leaving chronological matters to be discussed in Chapters VIII. and IX. To this rule I have made exceptions in the case of the church found at the Pool of Siloam, and of some minor discoveries complete in themselves. The chronological scheme found in Chapter IX. is offered tentatively as one that appears to me best to suit all the points. Had these been fewer, the scheme might have been modified, hence I am bound to acknowledge that if the discoveries had been more complete the theory might have differed at some points.

F. J. B.

LONDON, *March*, 1898.

EXCAVATIONS AT JERUSALEM

CHAPTER I.

THE WALL FROM THE PROTESTANT CEMETERY TO THE JEWISH CEMETERY.

The clue to the south wall—Maudslay's work at the scarp—Our search for a tower—Masonry of tower—Fallen stones—Rock-base of tower—Large clearance about tower—The counter-scarp—The outer scarp—Resemblance of outer scarp to Egyptian quarry—The wall—Details of masonry—The gate—Two periods at Tower I.—The substructure—The superstructure—The wall to Tower II.—Scarp at Tower II.—The wall to Tower III.—The two wall systems—The upper wall—Masonry at Tower III.—Search for a gate between Towers IV. and V.—Disappearance of upper wall—The lower wall—Three periods of Tower T—Search for gate—The chambers—Front wall—Alteration of line—Various styles of masonry—The wall to the Jewish Cemetery—Relation between upper and lower walls—The small scarps—Relation of these walls to Maudslay's scarp.

Clue to the South Wall.

In beginning our search for the ancient south wall of Jerusalem, we had a valuable clue. Situated some 120 yards west of the pile of buildings called

the Cœnaculum, or David's Tomb, and crowning the steep slope above the Valley of Hinnom, is the English school founded by Bishop Gobat. In front of the school is a garden, opening into the Protestant cemetery. Garden and cemetery have ordinary walls of masonry on three sides, but on the north-east they are protected by a cliff of rock, rising perpendicularly to a great height, with a comparatively smooth face, which shows signs of tool-marks. This cliff, or scarp, continues under the school buildings, where it juts out in a form to suggest the solid rock-base of a tower. So much can be noticed by any traveller. But in 1874 Mr. Henry Maudslay took advantage of the rebuilding of the school to make a careful examination of these rock-cuttings, a labour which required considerable excavation, and which produced valuable archæological results, described by Colonel Conder under the title of "The Rock Scarp of Zion," in the *Quarterly Statement* of the Palestine Exploration Fund" for April, 1875, p. 81 *et seq.*

Maudslay's Work at the Scarp.

In brief, these results are as follows: From the corner of the north wall of the school-house the scarp was traced north in a line directed on the south-west corner of the present city wall. At a distance of 100 feet the excavation was interrupted, but the scarp appears to run on. Returning to the school, we find this built over a square foundation of rock projecting from the scarp. This tower-base measures about 45 feet each way, and rises 20 feet

from an outer ledge of rock, which surrounds it, and with which it is connected by a flight of rock-hewn steps. Beyond the south-east corner of the tower the scarp continues south for 50 feet, and then, turning through an angle of some 40 degrees, runs in this direction to the eastern wall of the Protestant Cemetery, where it turns at right angles, as if to form the rock-base of another tower. This is approached from the bottom of the main scarp by a flight of rock-steps ascending along the scarp-face. These steps were first explored by Sir Charles Warren. At the angle where the tower projects from the main scarp the latter stands to a sheer height of 45 feet. Midway between the two towers, Conder sees indications of a third, which probably had a shallow ditch in front of it, the counter-scarp being traceable for a short distance. Examination of the ground behind the scarp revealed that this has an inner as well as an outer face. It was proved that "for at least a third of its length, and presumably throughout the whole extent, the great scarp is a parapet of rock in places 40 feet high on the outside, and at least 14 feet within." "The amount of labour expended on this magnificent work," continues Conder, "can well be appreciated by anyone standing at its foot in the passage cut by Mr. Maudslay, and when some 40 or 50 feet of strongly-built wall stood above the rock, the result must have been a splendid and impregnable fortification, which might well defy an attempt to take Jerusalem from the south."

In the floor of the tower at the school, as well

as in the rock behind the scarp-face, were found many cisterns. No original masonry appears to have been found *in situ*, the top of the scarp being rough and irregular. Outside the cemetery no excavations were made. Colonel Conder found the site of the supposed tower-base to be covered by a mound of rubbish which concealed the scarp, but about 100 feet beyond the cemetery's east wall, in a line measured around the supposed tower, the scarp was observed to crop up above the surface, running north-east for 175 feet, or almost at right angles to its direction on the other side of the tower. Opposite the scarp at its reappearance, a counter-scarp was traced for some 40 feet, leaving a ditch about 40 feet wide.

Such was the condition of things at this interesting spot when I took up the long-suspended work in May, 1894. The line of scarp described above was clearly near the south-west angle of ancient Jerusalem, and it was our business to follow the given clues.

Our Search for a Tower.

Our search for the tower, suggested by the bend of the scarp under the cemetery east wall, was at once successful. Digging a trench at A (see General Plan I.) outside the cemetery, at a slight depth we came upon a scarp at right angles with the scarp just mentioned. This proved to be the face of the tower-base. Pursuing it to the south-east for 12½ feet, we struck first one, then two courses of masonry, which continued unbroken for 27½ feet

to the corner B. Allowing 3 feet for the thickness of the cemetery wall, we have 43 feet as the length of the face of this tower, measured along the scarp, as the masonry is ruined above the corner A. This is practically the same length of face as we find at the tower near the school, which is 45 feet. At the corner B the scarp turns again at right angles, running north-east for 32 feet to C, the masonry continuing all the way. B—C represent the third side of the tower, for at C the angle of the scarp again changes. Beyond C it was excavated to the point where it has always been exposed. The masonry is missing, but one stone *in situ* is an indication that the wall once followed the scarp, which runs on in a general north-easterly direction till it is lost in some houses to the south of the Cœnaculum.

Masonry of Tower.

At the corner B three courses of masonry remain, varying in height from 27 to 28 inches. The stones of the lowest course have not always been of the same height, as the top of the scarp is irregular. This is not cut out in the form of beds for the stones, which are sometimes pinned up with chips. The masonry is set back a few inches from the splayed edge of the scarp. The stones are characterized by rough bosses projecting from 1 to 9 inches, and long back-set margins, or drafts, finished off with a chisel-pick, producing the "pock-marked" dressing. The comb-pick dressing is absent from the tower, but occurs on the single

stone beyond C. Though roughly jointed, the stones are set true in lime-joints about ½ inch wide. They vary in length from 2 feet 10 inches to 4 feet 8 inches. The masonry is in places covered with plaster, indented with marks made by a small wedge-shaped tool.

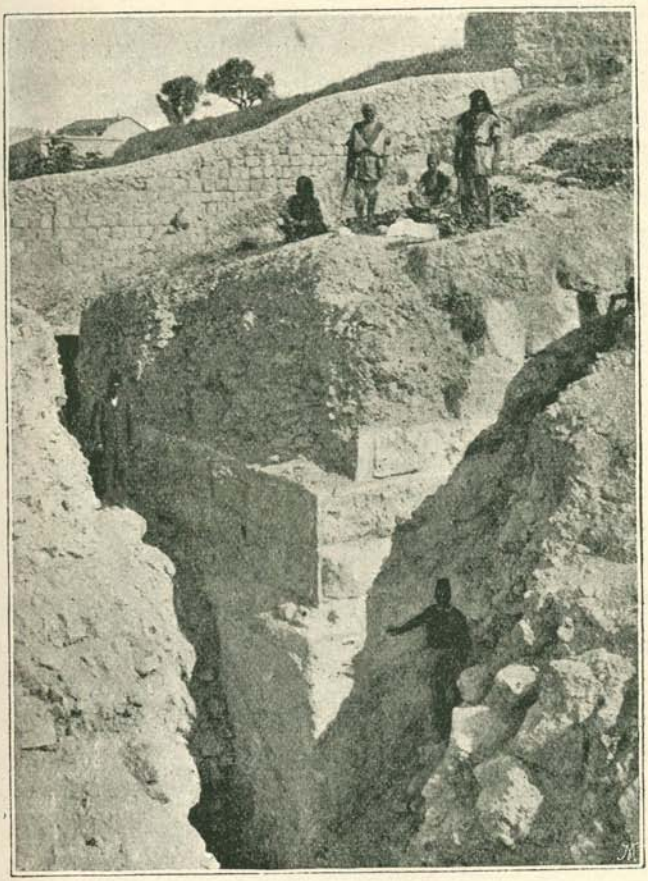
Fallen Stones.

In a large clearance which we made about the corner B many fallen stones were found, averaging 3 feet in length, and all drafted; while some are of exactly the same style with those found *in situ*, others show on their drafts the diagonal, fine comb-pick dressing characteristic of Crusading work. This period was also represented by the base of a clustered column.

Rock-Base of Tower.

Several cuttings were made in the débris covering the rock-base of the tower. Except at one point, its top had never been levelled, the rock rising rapidly along the line B—C, 11 feet in 32. Hence it seems as if the tower must have had a solid base of masonry set on the sloping rock. The masonry found was rude and irregular, and seems to belong to a later period. The one place where the rock has been levelled measures only a few feet each way, and has a curious, bottle-shaped depression in the centre. This small area indicates a room, as the floor is covered with cement, which extends down into the depression. As this floor has about the same level with the top of the first course of masonry along the line A—B, it is either earlier

than the tower, or else represents a chamber sunk in the supposed solid base of masonry. The pottery found in this place points to early times.



TOWER ON ROCK PLATFORM ADJOINING PROTESTANT CEMETERY.

LARGE CLEARANCE ABOUT TOWER.

As it seemed desirable to find the height of the rock platform of the tower, an ordinary shaft was

sunk at the corner B, but the large fallen stones so interfered with our progress that the base could not be reached. Accordingly I made a larger clearance at the same corner, 20 feet square and averaging 20 feet deep, which not only gave us the desired height of the platform, but also revealed the existence of a counter-scarp, running about parallel to the two sides of the tower, and indicating a fosse. The top of the counter-scarp is very much broken away, but opposite to the corner B (in the line A—B) it has the same level with the top of the rock at that corner. The height of the tower-scarp above the base of the fosse at the corner B is 16½ feet along the line A—B, but along the line B—C it is only 9 feet; in other words, the floor of the fosse is stepped up at the angle by a scarp 7½ feet high (see section A—N, Plate I.), which does not extend the whole width of the fosse, but leaves a narrow passage 2 feet wide next to the counter-scarp.* The fosse is here 19½ feet wide. In its deeper part the floor is not level, two large blocks having been left standing, with passages between them, which are themselves stepped down from point to point (see also section B—H, Plate I.). The fosse may never have been completed. The makers of these great cuttings doubtless worked the rock with a view to building-stones, and these blocks and passages may be due merely to the exigencies of quarrying.

* Sir Charles Wilson suggests that this "fosse" may have been originally a rock-hewn road (since defaced by quarrying) similar to the roads entering ancient Greek towns in Asia Minor. In this case the Gate of the Essenes might have been here.

The Counter-Scarp.

The counter-scarp at E, opposite the tower, clearly forms part of the one mentioned by Conder as being exposed at point D. We have noticed the sudden rise in the floor of the fosse at E, and between E and D there is a further rise of some 13 feet. An attempt was made to connect the two points, but a few feet south-west of D we found the counter-scarp cut away to make place for a room with a mosaic flooring, and we did not follow it further in that direction. We, however, followed it north-east from D consecutively for 110 feet, when we were stopped by a garden, but picked it up again at F, some 75 feet further on. It is not exactly parallel to the main scarp, which continues north-east from the tower, the fosse being at different points 40, 49, 54, and 65 feet wide. At D the counter-scarp is only 5 feet high, with a shallow channel running along its base, but 15 feet to the north-east the base of the fosse drops suddenly 5 feet, thus giving to the counter-scarp a height of 10 feet. Section G—D, Plate I., shows the relation between the scarp and the counter-scarp at this point. Thirty-four feet from D the counter-scarp is broken by a long, narrow recess, 28 feet deep, and averaging $5\frac{1}{2}$ feet wide, the sides and floor being plastered. The level of the floor drops slightly towards the south-east. That this fosse follows the scarp north-west from the tower A B C is indicated by the counter-scarp, described by Conder, in front of the supposed middle tower, at the back of the school garden.

The Outer Scarp.

Though at this point of the work we were clearly on the track of a wall which once ran from the tower-base under the Protestant school south-east to the tower A B C, and thence north-east towards the Cœnaculum, yet this latter direction did not seem to me to correspond with the description of Josephus of the ancient city wall, which led me to expect an easterly, if not a south-easterly, direction beyond the south-west angle, whence it should run towards Siloam. Moreover, it does not occupy the best strategic position, the slope towards the Valley of Hinnom not being as rapid as it is further down the hill, as a glance at the map-contours will show. Accordingly I made search for a wall to the south. A shaft was sunk to the rock just below the contour 2,469′, some 75 feet south-east of the corner of the cemetery, and a tunnel driven north in the direction of the tower. At H, a distance of 48 feet from the mouth of the tunnel, we struck the base of a scarp, which for convenience we name the "outer scarp." This was followed north-west to within a few feet of the wall of the cemetery, under which we could not dig. But I sank a shaft in the school garden at P, some 200 feet beyond the cemetery wall, and struck a scarp which seems to be a continuation, as it is running about in line with the first. This was traced for 22 feet, when the rock continues with a steep, natural face, but unworked.

By means of another shaft sunk above H we ascertained the height of the scarp to be 13 feet at

this point. Section B—H, Plate I., taken diagonally across the fosse, from the tower A B C to the outer scarp, shows the mutual relation of these three features. The outer wall of the fosse between the cemetery and E is really a huge parapet of rock, from 8 to 18 feet broad, its inner face being the counter-scarp, and its outer face the outer scarp.

In following the outer scarp south-east towards I, we observed the long recess marked on the plan. At I the scarp is 21 feet high (see section I—M, Plate I.), the fall in the top between H and I being 11 feet, and 19 feet in the base. At I it turns at right angles, running south-west to J; here it again turns, and runs north-west to K. Along this line it is very low, averaging only 4 feet in height, but with signs that the top has been quarried away. At K the scarp is only 2 feet high, but as we turn the corner there is a sudden drop of 6 feet in the base, which are added to the height of the scarp; this is due to another scarp beyond K in line with J—K, but facing in the opposite direction, that is, south-west, and indicated on the plan by a dotted line. From K we followed the main scarp through many turnings around to L, where we struck an aqueduct, the north side of which is partly formed by the scarp, here only 2 feet high. Between K and L the height of the scarp varies between 2 and 8 feet, signs of quarrying being evident. The low scarp in the aqueduct was traced east for a considerable distance beyond L to a point where it is choked by large stones. Some weeks later a scarp was found outside the wall (to be described later) at

Tower II. An unsuccessful attempt was made to recover the scarp between L and Tower II.

The length of this outer scarp traced along all its windings from the cemetery to L is over 300 feet. During the course of its excavation the supposition was that it had been designed for the defence of a city wall, but on careful consideration this appears now to be improbable. As the top of the scarp is clearly quarried away at many points, the absence of beds for stones is not determinative, but its irregularities are suspicious. The scarp is evidently one work along its whole line, and though the part between H and I certainly forms a splendid defence for that portion of the wall found later that lies between E and M (see section I—M), and though the line to south-west from I to J seems to serve very well in forming a platform before the gate, yet the irregular block J K O L, which juts out to the north-west, seems to have no connection with the wall in question. At first it seemed possible that this block might have been designed for a bastion, but the angles which it takes appear too arbitrary to allow of such a theory.

Resemblance of Outer Scarp to an Egyptian Quarry.

During a visit to Egypt I made a careful examination of a quarry behind Helouan, near Cairo, and was struck with the similarity it bears to this outer scarp at Jerusalem. This was situated in a small ravine. The rock had been cut away at either side, leaving two perpendicular, tool-marked

cliffs facing each other. Here were the same straight lines, but longer even than those at Jerusalem; here were the same short windings; here were the same smooth faces, marked with long tool marks, and standing to even a greater height. As the work was going on I could watch the process of the gradual deepening of the scarp. A small groove was made along its base; this was deepened for a couple of feet, and widened for a few inches; then the mass of rock thus separated on the outside was cut up into stones to be carried away. The scarp preserved its unbroken face, only it was 2 feet deeper than before. The depth of the scarp could thus be increased almost indefinitely.

I have mentioned that at many places the top of the Jerusalem scarp had been quarried away. While following along its top between I and J we temporarily lost the clue to the direction, and pushed a tunnel somewhat irregularly across the top of the projection J K O L, striking the main scarp again to the west of L. The rock traversed by this tunnel had everywhere been quarried away, and in many places we could see where individual stones had been cut out.* We may sum up the relation of this scarp to the wall E—N as follows: Although the scarp was clearly used for defending part of the wall, it evidently follows the line of a quarry. The only question can be one of priority. Was an old quarry taken advantage of as an outer defence when

* The clue thus lost was found again when we sank to the base of the scarp, and thus followed around the outside of the projection to L.

the wall was built? Or was it the quarry from which the stones of the wall were cut, worked with the design of leaving an outer defence, generally parallel to the wall, and leaving a platform outside the gate? From the considerations given above, I incline to the first view. A third view, based on a combination of the two, is, however, possible. The scarp from the cemetery as far as J may have been designed for defence, and the projection J K O L, though in its present condition it appears to be the same work, may have been due to later quarrying, the height of its scarp between J and L being very low.

Another puzzling question is the relation of this outer scarp to the scarp of Maudslay, which at the tower turns to the north-east. In the school garden at P, it is running fairly parallel to Maudslay's scarp. Their mutual relations at the fosse may be seen in section B—H, Plate I. But at this point they part company, the inner scarp turning to the north-east.

The Wall.

The chances which led to the discovery of the wall, which was traced from the fosse south-eastwards to the Pool of Siloam, and thence on to the end of Ophel, will be described elsewhere; as for the present, it seems better to adopt the logical rather than the historic method. In this chapter we shall deal with the part included between the fosse and the point where it enters the Jewish Cemetery. We now assume that it starts at the top of

the fosse which separates it from the tower A B C, as it would be difficult to discuss the relations between the two until both have been described.

Beginning, then, at E, the wall runs in a south-easterly direction 105 feet to the gate at N (see section A—N, Plate I.). The fall in the rock between E and N is about 1 in 6. For the first 34 feet from the fosse, only rude foundation rubble remains upon the rock. Then well-dressed masonry appears, and continues to the gate. Owing to the exigencies of tunnelling, the base of this wall was not always seen, but along one part, 24 feet long, a plinth course, also well dressed, appears resting on a roughly set and dressed course, itself above the still ruder rubble just mentioned. (This difference does not appear on the small-scale drawing, Plate I.) This same rough course was observed at the corner of the gate, under the fine masonry, the plinth course here being absent.

Details of Masonry.

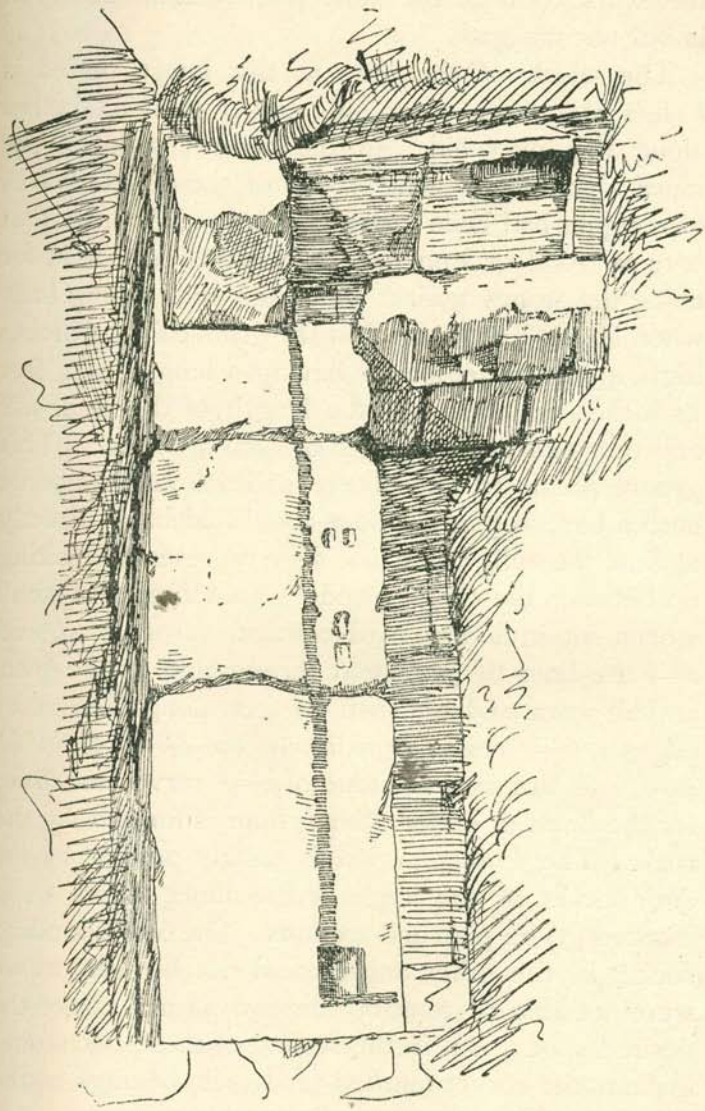
In the well-dressed masonry four of the upper courses were seen; three of these measure about 24 inches in height, the third 31 inches. As the rock falls rapidly, the bottom course is sometimes much lower, having at one point a height of only 11·4 inches, while that of the plinth course below it is only 10·3 inches.* In length the stones vary much; a few are hardly a foot long, but the average length of the majority is about 3 feet. The largest stone observed occurs in the gate opening;

* See Plate III.

it is 6 feet long. The courses are well laid in lime, are finely jointed, and pointed with a raised key pointing. The stones are smooth-faced, without margins, and dressed with the comb-pick, which has at different points seven, eight, and nine teeth to the inch. The breadth of the wall was measured at the gate at 9 feet. The inside face was traced for 25 feet from the gate. The stones at the corner have the fine dressing of the outside face, but the masonry beyond is rougher, as might be expected inside the city.

The Gate.

The gate is proved to represent four distinct periods by the different superimposed sills with their sockets (see Plate II.). On section A—B the latest door-sill is represented by the line *a*—*a*. It is composed of three large slabs of white *mezzeh* limestone, tinged with red, the central stone being not quite in line with the other two. The slabs are cut back 4 inches to form an inner and an outer sill. They are well polished, as if by the wear of feet, especially at the outer edge. In the angles of the inner sill are the round sockets marked (1), which indicate seats for the gate-posts. The masonry at this angle is eaten away in a series of furrows. While the excavation was going on, a storm threw down the gate of Neby Daûd (Zion Gate) in the modern city wall, and at the angle above the sockets for the gate-posts I observed the same furrowing, plainly caused by the overlapping iron sheets with which the gate and posts were plated. This may be



SKETCH OF GATE-SILL, LOOKING DOWN.

the explanation for the same phenomenon observed in our ancient gate.

The width of the gate at this latest period is 8 feet along the outer sill, and 9 feet 10 inches along the inner sill. In the central point of the inner sill are holes, where bolts of the double leaves of the gate had been fastened down. We infer that bars of wood or iron had been nailed across it, for along the stones against which the door swung back when it stood open, we find the groove *i*—*i*, 6 inches high, 4 inches deep, and having a length of 4 feet 11 inches, which is half the length of the inner sill, and thus exactly the length of each door-leaf. This groove seems to have been made to accommodate such a bar, so that the door could fold back directly against the wall. The line *b*—*b* represents a making up between the sill *c*—*c* and *a*—*a*, consisting of small stones set in a very hard cement. *c*—*c*, *d*—*d*, and *e*—*e* are lines of pavement terminating at the gate, and all worn and polished by feet along their outer edges. *c*—*c* rests immediately on *d*—*d*, *d*—*d* on *e*—*e*, and the central stone of *e*—*e* serves as cover for the drain or sewer whose floor is formed by the rock. The lowest period is clearly proven by the door socket in the angle of the inner sill of *e*—*e*, marked (3) on plan and sections. The corresponding socket in the other angle could not be seen, as we were not able to remove the two stones above the desired spot. But in the second of these two stones appears the socket marked (2) which belongs to the sill *c*—*c*. The corresponding socket in the other angle was not found, and the proved absence of

central bolt-holes suggests that at this period the gate had a single door. As we were unable to remove the stone containing socket (2), we could not identify the socket of *d*—*d*; but that this represents a distinct door-sill is proved by its worn outer edge. The number of periods is thus brought up to four.

The width of the gate during the three earlier periods was 8 feet 10 inches along the outside, being 10 inches wider than during the last period. The two flanking stones *e'* and *e''* (splayed at the top), which were built for the lowest sill, served also for the second and third periods. During the last period the central axis of the opening was shifted slightly to the left. The outer faces of *e*—*e*, *d*—*d*, and *c*—*c* are practically in the same vertical line, but the face of *a*—*a* projects some 13 inches beyond them.

The excavation of the gate was rendered difficult by the fact that the space inside it was blocked by the slabs of pavement which represented the various levels of a street corresponding with the different gate periods. In the making-up below the pavement leading to the highest sill, there occurred a quarter-column pilaster, with a *graffito* carved rudely upon it, consisting of two or three Roman letters, followed by the numerals IIII. or VIII. As this place was kept open to show to visitors, a squeeze was not taken at once, and when I returned to take one, unfortunately the excavation had caved in.

As a few feet beyond the gate all traces of the upper roads have disappeared, it is probable that, except near the gate itself, the lowest road imme-

diately above the drain was used during the four periods.

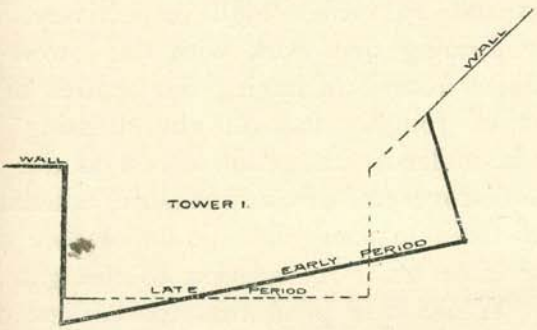
A careful examination makes it clear that the smooth-faced masonry described above was characteristic of the wall during the four gate periods. For the masonry at *f* (the internal corner of the gate opening), which belongs to the first period, as it is immediately above the earliest pavement, has the same dressing and character as the course of masonry running north-west from *g*, which course clearly was in use during the fourth period. While it is plain that stone *g* itself was placed in its present position above the highest door-sill when the gateway was altered at the fourth period, there is nothing to prevent the supposition that the rest of the course was standing during the four periods. The course *h*, though more roughly set, has the same dressing as the masonry above, and belongs to the four periods.

Below *h*, and resting on the rubble, is the ruder course which has been mentioned before.

Two Periods at Tower I.

From the south-west angle of the gate to its junction with Tower I. the wall runs for 31 feet in its former direction. The smooth-faced masonry has been much ruined, and only portions of one course remain, resting on the rough-dressed work which projects slightly in advance. At Tower I. these two styles are shown to represent two distinct periods; for the rough-dressed work serves as a substructure for a tower of the smooth-faced

masonry. This later tower is much ruined, the masonry breaking off abruptly south of its south-west corner; but enough of this face remains to show that it was built on a different line from that of the lower. That the later tower was the smaller of the two is suggested by an examination of the junction made by the tower with the wall extending east: here we have only two courses left on the rock. In the tower these are of the rough-dressed



masonry; in the wall they consist of the smooth-faced. They are not bonded together, the latter running back of the former as if to make the junction further west with the contracted later tower.

The Substructure.

Of the substructure, or earlier tower, three courses remain, respectively 20, 16½, 16½ inches in height. The stones are rudely squared and roughly set in coarse lime. The courses are set back one from the other, but the lines are not exact. The stones are much weathered, but the dressing shows

signs of long chisel marks, with an occasional use of the comb-pick. A few of the stones are rudely drafted. The face of this original tower is 34½ feet long.

The Superstructure.

Parts of three courses of the superstructure, or later tower, also remain (see Plate III.). The lowest course is identical with the smooth-faced masonry described before; the two upper courses are 20 and 23 inches high respectively. While clearly forming one work with the lowest course, they differ from it in having flat centres of ⅛ inch projection, roughly flaked; the dressing of the drafts is similar to that of the lowest course.

The discovery of this substructure, antedating the smooth-faced masonry, has an importance that will appear later on. Its relation to the gate is not clear. While it is plain that the earliest door-sill was employed when the smooth-faced masonry was first built, we cannot affirm that this door-sill was not in use also at the earlier period represented by the rough-dressed masonry, nor yet can we infer that it represents the earliest gate ever erected at this point.

The Wall to Tower II.

Beyond Tower I., which is the south-west angle of the ancient city, the wall was traced along the rock 32 feet east to a point where it disappears, having been quite recently robbed for building stones. As just mentioned, the masonry at the angle is of the smooth-faced or later type, though a small irregular

buttress which occurs at the break belongs to the earlier period, as shown by the style of masonry. Some 90 feet beyond we made a trench across the line extended from Tower I., striking the wall 9½ feet out from this line. This was proved to be the face of Tower II., for, after continuing east for 27½ feet, it bends back at right angles for 9½ feet to the old line, which then runs on east. Thus, from the break the destruction had continued to Tower II., and had included its western side. We assume the face of Tower II. to have measured about 29½ feet, and the distance between Towers I. and II. to have been about 121 feet. This face rests on the rock, whose top slopes irregularly, and is in no case cut out to let in the stones. Along part of the face a course of the rough-dressed masonry appears, above which the masonry is of the smooth-faced type. Near the supposed south-west outer angle the aqueduct seen before at L enters the tower.

Scarp at Tower II.

Directly parallel to the wall beyond Tower II., and lying 26 feet out from it, we found a scarp 7 feet high. This was traced for 50 feet to the east, and appeared still to continue. Opposite to the south-east corner of the tower it turns out at right angles in line with the east side. As it has been much quarried away, we were unable to ascertain whether it originally bent around the external angles of the tower. This scarp faces south, but between it and the wall, about in a line with the face of Tower II., was found a scarp facing north,

forming a counter-scarp to the wall, with a ditch some 10 feet wide. This ditch does not follow around the face of the tower, and may be merely due to quarrying.

The Wall to Tower III.

From Tower II. the wall was traced to Tower III., a distance of 119 feet. Tunnels were driven from either end, which almost met, so that all but about 12 feet of the whole length was seen. The drop in the rock between the two points is 25 feet. The lowest course usually consists of the rough-dressed masonry, above which rises the smooth-faced work. Immediately beyond Tower II. three courses of this masonry remain, the lowest consisting of a plinth with a 7 inch projection. The other courses are 20 and 25 inches high respectively. The thickness of the wall is here 8 feet. Twenty-six feet beyond the tower the low-level aqueduct enters the city. This is, plainly, later than the smooth-faced masonry, which was broken to effect its entrance, and then repaired, as shown by a break in the coursing. The appearance of the wall west of Tower III. is seen in Plate III. Here two plinth courses occur, each projecting 5 inches. At the angle the regular coursing is broken, but a few feet to the west the height of the courses measures 14, 22, 22·4, 17·6 inches respectively, beginning with the upper plinth.

The Two Wall Systems.

We have noticed that the wall shows signs of two periods at several points along the line between the

fosse and Tower III. At Tower I. the smooth-faced masonry is built at a different angle from the rough-dressed, but otherwise they follow the same line. Beginning, however, at Tower III., the two systems run on independent lines for some 350 feet to the east, where they appear again to coincide at W. The lower wall always rests on the rock, and stands to a height of from 5 to 13 feet. Its ruined top is buried by débris. The upper wall at Tower III. also rests on the rock, but beyond this it is founded on rough rubble, which rests on the débris covering the lower wall (see developed section *a* to W, Plate IV.).

The Upper Wall.

It will be more convenient to describe the upper or later line first, as this is the continuation of the wall of smooth-faced masonry, which was traced from the fosse, and to which the four door-sills belong.*

Masonry at Tower III.

Tower III. is fairly well preserved, six courses remaining at one point (see Plate III.). These vary in height from 19 to 22·4 inches. The general appearance of the masonry does not differ from that described before, with the exception of stones 1 and 16, which have double-smooth bosses of $\frac{1}{8}$ inch projection, similar to the single-bossed stones of the superstructure at Tower I. At both towers these

* On General Plan I. the upper wall between the fosse and the Jewish cemetery is indicated by hatching in red.

bossed stones appear to be of the same age as the smooth-faced stones. A minute examination of the individual stones shows some difference in dressing. Nos. 5, 11, and 21 have the ordinary comb-pick dressing (characteristic of the wall up to this point), which may be slightly observed on the bosses of stone 16. The tool used in No. 7, though somewhat different, has also teeth. No. 6 is roughly flaked, as are the bosses of No. 1. Nos. 3 and 4 are indefinite owing to weathering; but all the rest are chisel-dressed, the strokes being curved and in groups of parallel cuts. On No. 16 both the chisel and comb-pick have been used. The wall west of Tower III. shows the two styles, with the comb-picking in predominance. They seem to have been used indifferently at the same time, though Dr. Petrie considers that the chisel-dressing or "long-stroke picking" was employed in Palestine before the introduction of the comb-pick. In general, the masonry just described resembles the stones in the south wall of the Haram Area, which belong to the period of the insertion of Hadrian's inscription upside down, and is therefore later than his time.

Search for a Gate between Towers IV. and V.

The face of Tower III. measures 25 feet 10 inches; its projection is 9½ feet. Tower IV. was found 120 feet to the east of Tower III., the connecting wall not having altered its direction. From Tower III. this wall was traced for 14 feet under the road, was seen again at a point midway between the two towers, and picked up again a few feet west

of Tower IV. The west side of this tower is ruined down to its foundations, but as a good part of the face is *in situ*, we could measure its projection at 10 feet 6 inches. The face is 30 feet 7 inches in length, and is set back 6 inches from a plinth in two courses, the upper consisting of well-dressed masonry, the lower being rougher. As the distance between all the other towers is about 120 feet, the finding of Tower V. only 70 feet from Tower IV. was unexpected. Its projection is also greater than that of Towers II., III., and IV., being 16 feet. The proximity of Towers IV. and V. favoured the idea that they once flanked a gate midway between them, at a point where a drain coming from the north butts against the rubble foundation. But the smooth-faced masonry, which is still preserved between Tower IV. and this point, is unfortunately completely ruined immediately above the drain (the wall having been robbed for building stones), and does not appear again till we reach the west outer angle of Tower V. As the drain is cut off by the foundations of the upper wall, it represents an earlier period, and hence cannot be taken as a clue. The road, traced in a straight line for about 500 feet from X′ to D′, would, if projected, strike the wall some 200 feet east of this point, but beyond D′ it may have altered its direction to lead here. However, search for it near the supposed gate was unsuccessful. Thus, the position of a gate between these two towers remains a moot one. Besides the proximity of the towers, another point in favour of the gate is the close-jointed smooth masonry,

with raised key-pointing, found along the *inside* face of the wall between Tower IV. and the drain. This feature was noted at the gate at N, where the smooth masonry occurs along the inside face for a few feet from the corner, where it gives place to rougher work. Against this gate theory is the fact of the gate at N, only 180 yards away, measured along the line of wall. We would hardly expect two gates so near together.

Disappearance of Upper Wall.

From the drain the rubble foundation was traced to the junction with Tower V., and then along its west side to the west outer angle, where the smooth masonry again appears. Between Towers I. and V. the direction of this upper wall has remained unaltered, being due east, but with the face of Tower V. it begins to bend slightly to the south-east. The face could be measured along the foundations at 32 feet, but the smooth-faced masonry, set back 12 inches from the rough foundation, is much ruined. The east side is well preserved, though the internal angle is in a ruinous state. Beyond this angle, we followed the wall for 14 feet to the point V, where a complication of landownership prevented our pushing the tunnel any further. This is the last point where we saw the smooth masonry characteristic of the upper wall, but we were able to prove that it must have been ruined again not far east of this point; for at W, about 55 feet beyond V, in the line in which it was running, we struck a large

rubble foundation on the rock, with no dressed masonry above it. Hence, if the upper wall ever ran to W, it has disappeared at this point. From W we pushed a lofty tunnel for 70 feet to the north-west, at a level calculated to catch the upper wall, in case it had turned to the north-east between V and W. No traces were found either of rubble foundation or of smooth masonry. The conclusion is that from V the wall ran on to the rough rubble at W. We reserve a discussion of its relation to the lower wall, and our conjectures as to its further course, until we shall have described the lower wall. Between Tower III. and V., the smooth masonry of this upper wall is identical in character with the portion between the fosse and Tower III. Its breadth is 9 feet, but its rubble foundation, resting on débris only, has for strength a thickness of 14 feet, and in places a depth of 10 feet. This consists of rough stones, large and small, laid at random in coarse mortar, containing mud and some lime.

THE LOWER WALL.

Having traced the upper wall eastwards from Tower III., we may now return to the same point and follow the lower wall along a somewhat divergent line. After forming the large Tower T, Plate IV., it runs north-north-east to *f*, then breaks out to *g*, and resumes its former direction to *k*. Projecting from the wall *g*—*k* is a series of six chambers. From *k* the wall was traced east-south-east along rude rubble foundations, which are all that remain, to the point U,

where a slight offset occurs. Precisely similar foundations were found at W, some 70 feet beyond. Owing to certain land complications, we did not connect the two points, but there seems no reason to doubt the identity of the rubble at U and W, especially as the slight change in direction required might have taken place at the offset just mentioned. We have shown above that the upper wall also appears to tend to the point W.

Three Periods of Tower T.

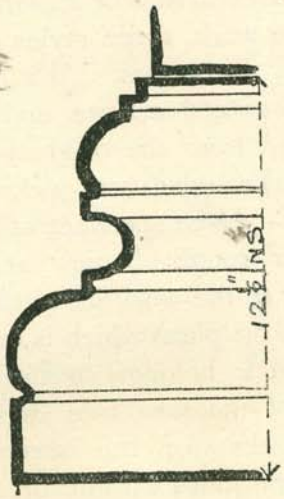
Between *a* and U various styles of masonry may be observed (see Plates IV. and V.). The three sides of the Tower T are drawn in elevation. Three periods are distinctly recognisable in the east side, *c*—*d*; hence we begin our description at the internal eastern angle, *d*, and work around the tower to *a*. The first period is represented by the masonry, which extends 10 feet from *d*. Here we have the most beautifully-set work we have observed anywhere in our excavations (see specimen at *d*, Plate V.). The fine rubbed jointing is superior to any ever found in Jerusalem, and is so close that a pin-point can hardly be inserted. The stones are perfectly squared, and set without mortar. A few have centres projecting not more than $\frac{1}{4}$ inch. The broad margins, which are worked fine and smooth, are carefully comb-picked, while the centres are pick-dressed. Part remains of three courses, each $23\frac{1}{2}$ inches high. Elevation *c*—*d* shows that the top of the scarped rock is stepped up to form beds for the lowest course.

Where this fine work ends, rougher-set masonry of an entirely different character is bonded into it. The courses of this later work, which indicate a second period, vary in height from 19 to 21 inches, being perceptibly lower than those just described. After continuing 21 feet, this masonry ends in a straight joint, beyond which there is an extension of the face, proving a third period. While the regularity of the courses shows the masonry of this second period to be one work, three styles of dressing may be observed on the stones. We have: (1) stones with fine chisel-picked centres and comb margins, evidently re-used from the original wall, which still remains at *d*; (2) rough quarry-picked stones, similar to the work at *i*—*j* (see specimen at *i*—*j*, Plate V.); (3) stones with rough bosses and comb-picked margins, similar to the work in specimens Y and Z.* The drain (seen on plan) which is cut in two by the face-extension at *c* belongs to the earlier period. The masonry of the new face does not differ in character from that of the second period just described, and continues without break to the corner *b*, where it is set forward $6\frac{1}{2}$ inches from a single course of stones, whose dressing and fine setting are identical with the work at *d*. As at *c* we saw the corners of the second and third periods, so here at *b* we have the corners of the first and third periods. We cannot tell whether in the two earlier periods the tower was symmetrical or not, but the projection of the latest work certainly resulted in making the face square with the sides.

* See pp. 39, 84.

On the west side the masonry is ruined at a distance of 12½ feet from the corner *b*, but the carefully stepped-up rock shows how the wall had been carried up to the point where the upper wall diverges from it.

Returning to *d*, we observe that the beautiful masonry found here is not bonded into the wall *d*—*f*, which carries on the line in rude rubble as far as *e*,



MOULDING BUILT INTO LOWER WALL.

where a straight joint occurs, with better masonry extending not only to the angle *f*, but running back of *f*—*g* towards *h*. Now, *f g o* consists of patchwork, into which are built three fragments of Græco-Jewish mouldings, like those on the Hasmonæan monuments in the Kedron Valley, as well as the fragment of a large drafted stone, like the work at the Jewish Wailing-place. Hence, since

the masonry at *e f h* is similar to the portions preserved along the line *o i j*, it seems probable that the line from *i* once ran to *h*, which thus would have been the original inner angle instead of *f*.

Search for Gate.

The line *d*—*f* seems to be a favourable position for a gateway, flanked as it is by the tower *a b c d*, on one side, and by the projecting chambers on the other. The masonry being continuous along the line, if such a gateway ever existed, it has been blocked up. The straight joint at *e*, between the rubble and the better masonry, at first appeared to furnish a clue ; the right jamb of the door might be represented by the corner *e* of the better work *e*—*f*. But no signs of a left jamb were found, the rubble being continuous from *e* to *d*. Moreover, as *e* is exactly in the central point between *d* and *f*, if we place the right door jamb here, the centre of the gate opening itself would be thrown out of the centre of *d*—*f*. This displacement would be even greater in the theory that *e*—*f* runs back to an original internal angle at *h*.

An examination was made of the top of the rock which slopes under the wall rapidly from *d* to *f*, but no marks of tooling were found to indicate that it had been levelled for a gateway. The only remaining clue left to be looked for was that of a paved road inside the wall, which might have led to a gate. Breaking through the wall at *e*, we examined the rock behind it for some distance to east and west, an

examination continued from a shaft sunk further north. We found the rock in places to be in its natural unworked condition, in others quarried away, leaving a scarp 6 feet high, but no signs of a roadway appeared anywhere above it. In one place the walls of a house crossed the hypothetical line of road. From these negative results we infer that there never was a gate-opening here at the level of the rock at the base of *d—f;* and if an opening has ever occurred at a higher level, all traces have been destroyed by the upper wall, which here crosses the lower.

The Chambers.

The excavation of the series of chambers projecting from the wall *g—k* was rendered difficult by the utter ruin of their walls at various points, by the dangerous nature of the débris, and by a system of later building intersecting chamber 1, and built in part over its front wall. The plan which we give, however, was proved to be correct by a careful comparison of measurements and angles. The length of the chambers is 21 feet, with the exception of No. 2, which is 2 feet longer, owing to a recessing of the back wall. Chambers 2 to 6 vary in breadth from 12 feet 2 inches to 13 feet 3 inches, while No. 1 is 17 feet broad. The back wall, *o—k*, is about 9 feet thick, and in places six courses still remain *in situ*, the masonry consisting of hammer-dressed stones, roughly squared and badly set, with a few bossed stones interspersed. The north face of this wall was examined at one point, and proved to be sunk for

7 feet in the virgin soil which covers the rock. A vain but thorough search was made along this back wall for doors to the chambers. As the rock bottom is rough, and slopes rapidly to the south, the inference is that the chambers are ruined below the level of the flooring, and hence below the level of the door-sills. The division walls vary in thickness from 5 feet 8 inches to 6 feet 5 inches, and though their masonry is similar to that of the back wall, they run back into it without bond. The division wall between chambers 5 and 6 is ruined down to a single course beyond the point of junction, where it could be plainly seen to be broken off.

The front wall, *i*—*j*, is 8 feet 6 inches in thickness. Its external south-west angle was found at *i*, and portions were seen (always in line) in front of chambers 1, 2, 3, and 6. At *j* the ruin is complete; but that the south-east external angle of the chamber system was at this point is proved (1) by the altered direction of the main wall from *k* on; (2) by the fact that, in tracing this main wall 48 feet to U, no more division walls were found; and (3) by the fact that the wall *k*—*j*, traced 19 feet south from *k*, has a thickness of 7 feet, proving it to be the eastern side of the system, and not one of the division walls, which average only 6 feet in thickness. (The corresponding wall, *o*—*i*, which forms the western side of the system, is about 8 feet thick.)

Front Wall.

From one to six courses of the front wall remain at various points, varying from 24 to 29 inches in

height. The stones, which are set in mortar, are roughly squared, with quarry-picked faces, comb-picked at the edges. They are identical in dressing with the quarry-picked stones found in the tower *a b c d* and along the line *e—f* to the east of the joint at *e*. That this wall presents a decidedly better face than the back wall may be seen by comparing specimens at *i—j* and *o—k* (see Plate V.). The corner stone at *i* is drafted and better worked. The lowest dressed course is set on 18 inches of rubble bedded in lime and ashes. That it does not stand back from a scarp was proved by a tunnel driven along the sloping rock for 30 feet south from the face.

Alteration of Line.

From the corner *i* the west wall of the chamber system was followed north for 15 feet, where it butts against the rock and is ruined (see section *o—i*, Plate IV.). There is evidence, however, that it once intersected the wall *g—k* at *o*, for at this point the patchwork masonry *f g o* suddenly stops, and is carried on east for 8 feet in a totally different class of masonry, consisting of small, square, finely dressed stones, in courses averaging 14 inches high. This rebuilding was clearly effected after the wall *o—i* was destroyed, as it runs *back* of that line. It belongs to the later system of thin walls to which I have referred, erected partly on the ruins of chamber 1. As this system was proved to run on quite different lines, and hence to have no organic connection with the chamber system, it would be

only confusing to add it to the plan ; *f g o*, however, appears to belong to the chamber system, but, as we have shown, it may not represent the original work, as there are indications that the face *i*—*o* once ran back to *h*.

Various Styles of Masonry.

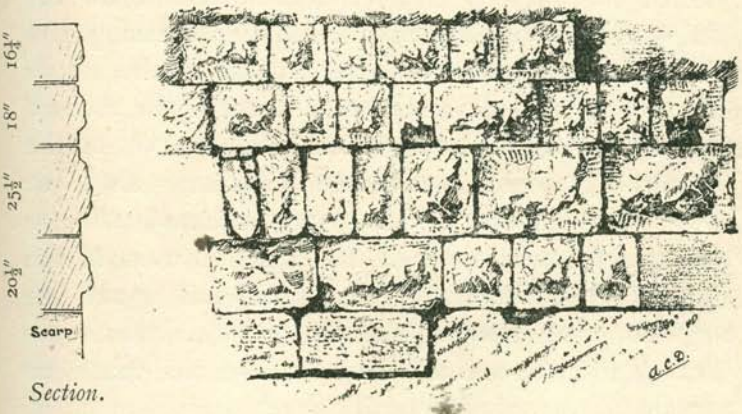
The various styles of masonry which we have described between *a* and U indicate several periods of rebuilding. We may now recapitulate these styles in order to see which may be characteristic of the oldest period. We may at once eliminate *d*—*e*, which is a filling in ; *f g o*, which is plainly patchwork ; *o*—*k*, the back wall ; and *k*—U, which is rough foundation work, without indication of the style of superstructure. There remain the outer wall of the chamber system, *o i j k* (which presents one style similar to *e*—*f*), and the tower *a b c d*. The stones of *o i j k* are quarry-dressed and roughly squared, but certainly *in situ*. The tower has signs of three periods. The first is shown by the well-jointed masonry at *d* and *b* ; the second and third are distinguished from each other by the straight joint at *c*, but do not differ in style of their masonry. In this masonry occur three kinds of stones : (1) Stones with chisel-picked centres and comb margins, evidently re-used from the first period, as they are similar to the work at *d* and *b* ; (2) quarry-picked stones, such as appear *in situ* at *i*—*j* ; (3) stones with rough bosses and comb-picked margins. The inference to be drawn from these data is that the

oldest characteristic parts of the line between *a* and U may be found at points *d* and *b* of the tower, and perhaps in the exterior wall of the chamber system.

The Wall to the Jewish Cemetery.

We have shown (p. 29) that the upper and lower lines which diverge at Tower III. appear to coincide again at W, where only rude rubble occurs on the rock. This varies from 3 to 6 feet in height, and consists of large and small undressed stones, usually set at random, though sometimes built in rough courses. In places the face of the rubble has been plastered; it was traced to the south-east for 125 feet. Nineteen feet beyond W there is a slight re-entering angle, and 28 feet beyond this corner we find the wall foundations set back 1 foot from a scarp 6½ feet high, which runs on 30 feet, and then turns out at right angles from the wall, which runs on straight. Between the offset near W and the point X the slight variations in the direction of the very rude rubble may not indicate a corresponding irregularity in the well-dressed masonry which has been ruined. At X, however, only 16½ feet before the rubble runs out, the direction becomes decidedly more south-easterly. Enough remained to give us the altered direction, and, sinking a shaft in the same line 122 feet beyond X, we came on the wall at its junction with a tower. The wall is set on a scarp 6½ feet high, which breaks out at right angles, running under the east face of the tower. The tower masonry is ruined a few feet from the internal angle, but that it once projected at least 26½ feet is

indicated by the scarp, which extends south for this distance. At the supposed external angle the rock is cut away at an acute angle back into what must have been the foundation of the tower; thus, if the scarp ever continued around the face and west side, all signs of it have been destroyed by quarrying. Though only a bit of the east side remains, we are justified in inferring a tower, as the wall from which it projects is exactly in line with rubble *in situ* at X.



Section.

SPECIMEN AT Y.

The masonry was traced from the tower for 26 feet to the point Y, where it enters the Jewish cemetery, under which it could not be followed; but that it runs on in almost the same line is proved by a comparison of the masonry at Y with that found emerging from the cemetery at Z (see p. 84). At Y the scarp is here and there cut out in the form of beds for stones, but otherwise it is irregular, and the lowest course is pinned up with chips. Five courses of masonry are *in situ*, varying from 16¼ to 25½ inches

in height, the setting characterized by wide vertical and horizontal joints. The lowest course consists of plain-faced stones, the others of stones having irregular comb-picked margins and rough projecting bosses. The wall has a fine trowel pointing (evidently of later date), which extends over the whole of the margins, a feature observed also near the gate at Siloam. This work resembles in no way that of the upper line, where smooth-faced, close-jointed masonry is clearly differentiated from the plain-faced course at Y by the rougher dressing and setting of the latter. The stones of the upper courses, however, are quite similar to the bossed stones used in the second and third periods of the Tower T of the lower line. In size also the tower at Y appears to have approximated more to this great tower than to the small towers of the upper line. Towers I. to IV. of this upper line are about mutually equi-distant, but as this regularity is interrupted at Tower V., we can make no argument out of the position of the tower at Y. However, we assume that it belongs to the lower line, hence I do not name it Tower VI., as the numbers I. to V. apply strictly to the upper line, although Towers I. and III. are built over old foundations.

Relation between Upper and Lower Walls.

We may now, at the risk of some repetition, consider the relation between the upper and lower walls. The upper wall starts at the fosse, turns east at Tower I., and was traced as far as V, beyond which

its characteristic masonry was seen no more. The first positive indication of the lower line is given by the substructure of Tower I. The rough course of masonry seen under the smooth work of the upper line between the fosse and Tower I. (and elsewhere) may represent the lower line, but as a rough course also occurs in the plinths of Towers IV. and V., which are plainly independent of the lower line, we cannot be sure on this point. But that the two lines were coincident between the fosse and Tower I. is made probable by the deep scarp to the west, taken in connection with the fact that at both periods Tower I. was at an angle of the wall. At Tower III. the lower line again appears, and at its west internal angle the two lines are seen to coincide. As the rock between Towers I. and III. is never far from the surface, we infer that between these two points the lower wall was ruined either to the rock or to the rough course of stones just mentioned, and that the upper wall followed the older line. At Tower III. of the upper line the lower wall diverges to form the larger tower T, whence it runs in a varying line along the rock to U; but the later builders carried their wall on straight, and, finding the rock deeper as they went east, disregarded the old line, sometimes resting their rubble foundations upon it (as seen in shaft 1 on the developed section, Plate IV.), and sometimes merely on the débris with which the old wall was buried (as seen at shafts 2 and 4).

In tracing the upper and lower walls east, there were interruptions at V and U, but 55 and 70 feet respectively beyond these points rubble foundations

were found at W. As these are similar to the work at U of the lower line, their identity is clear. We have shown that the upper line at V is not only heading towards W, but that no signs were found of its having diverged towards the north-east between the two points, hence it seems that the two systems again coincide at W. The rough rubble runs out near X, but 122 feet beyond the internal eastern angle of a tower appears, from which a wall runs under the cemetery, and then on to Siloam. The masonry of this tower and wall relegates them to the lower line. No traces of the smooth masonry of the upper line were seen beyond V, though it seems to run on to the old line at W. As to its course beyond this point, it must either have followed the old line to Siloam, or else have diverged to the north-east at some unknown point beyond W. If the former suggestion be true, then the only way to account for the absence of the smooth masonry beyond W is the supposition that the older line was in such good condition that it required only to be repaired, the smooth stones of the reparation having disappeared.*

To recapitulate: (1) The starting-point of the upper wall certainly, and of the lower wall probably, is at the fosse. (2) They continue in the same general line as far as W. (3) Beyond W the course of the upper wall is uncertain, while the lower wall runs down to Siloam, including the pool. (4) There is evidence that these walls represent two perfectly

* For the resemblance between this upper wall and Warren's Ophel wall, and for their possible connection, see pp. 128 and 129.

distinct periods, for the layer of débris accumulated between the ruined top of the lower wall and the foundations of the upper wall shows that there intervened a time when no city wall existed at this point. (5) These two periods may be each divided into sub-periods, represented in the case of the lower wall by the three systems of construction in the tower T, and in the case of the upper wall by the four different levels of the gate.

The Small Scarps.

We have noticed the scarps which occur at three places along the double line of wall east of Tower I.: (1) The scarp near Tower II.; (2) the scarp east of W; and (3) the scarp at Y. That these scarps are not continuous was found by an examination of the rock for 50 feet south of the back wall of the chamber system, the slope being unbroken by any scarp. The same question arises here which puzzled us in discussing the outer scarp near the Protestant Cemetery: were these scarps designed especially for the defence of the wall, or do they represent the lines of an old quarry taken advantage of as an outer defence when the wall was built? In the case of (1) we have a scarp 26 feet out from the wall, and running exactly parallel to it for at least 50 feet to the east. Opposite to the south-east corner of Tower II. it breaks out in line with the east face, but as it has been much quarried away, we could not tell whether it originally bent around the external angles of the tower. The ditch, 10 feet wide, which does not

follow around the tower, but extends eastwards from it, has been noticed. In favour of the view that the scarp was designed for defence of the wall at this point is the fact that it is here exactly parallel to the wall which runs on long after the scarp disappears. Could we have proved that the scarp bends around the tower, the case of design would have been clear. Against this view is the fact that the wall stands 26 feet back from the scarp, especially as the ditch, which does not follow around the tower, appears to be mere quarrying.

Equally puzzling is case (2), east of W, where we find the rubble foundations of the older wall set back 1 foot from a scarp $6\frac{1}{2}$ feet high, which runs for 30 feet and then breaks out at right angles from the wall, which itself runs on straight. Hence we cannot argue that it was designed to follow around a tower of the later system. But if designed to protect the older wall, why break away from it?

In the case of (3) the fact of design seems more evident. The angular scarp at Y, forming the base of the east side of the tower, and of the wall continuing east to the cemetery, is, of course, older than this lower wall, and was clearly designed for its protection; but as the tower is almost entirely ruined, even its rock-base having been quarried away, we cannot tell whether the scarp once ran around the other sides of the tower.

We may sum up the relation between the wall and the scarped rock as follows: (1) While this relation has not been tested all along the line, yet it has been proved at certain points that the wall runs indepen-

dently of any scarp. This is just what might have been expected. Given a certain line of wall, the possibility of defending it with a scarp depends, of course, on the fall of the rock at various points. (2) While the several scarps found outside the wall served as a defence, only some of these were especially designed, while others occurred in more ancient quarries whose lines happened to run parallel to the desired line of wall.

Relation of these Walls to Maudslay's Scarp.

In discussing these two systems of walls, we have assumed that they started at the top of the fosse, which separates them from the tower A B C. As seen on the plan, the scarp running south-east from the Protestant school forms an angle at the tower A B C, from which it runs north-east towards the Cœnaculum.

The scarp represents a line of wall which we may call A B C. At first view it appears to be distinct from the two wall systems starting from the top of the fosse, and running towards the Jewish cemetery. In discussing the relation between A B C and these walls, we may for the present regard the latter as one line, to which we shall refer as E N. There is nothing in the remains to determine definitely their relative age, but three theories are possible: (1) A B C is older than E N; (2) A B C is contemporary with E N; (3) A B C is later than E N.

1. If A B C is earlier than E N, then this tower represents the original south-west angle of the city,

beyond which the wall ran north-east, not enclosing the whole of the western hill.

2. If A B C is contemporaneous with E N, the original south-west angle of the city falls at Tower I., and the line from the Protestant school to this point should then be continuous. As a matter of fact, it is interrupted by the fosse, which at the tower A B C turns to the north-east, following the scarp. A glance at the map of modern Jerusalem will show the same phenomenon. Immediately to the south of the Jaffa gate the citadel projects somewhat from the line of the city wall; the moat which surrounds it is partly without the city and partly within, and at the points where the moat enters the city occur interruptions in the city wall, though in recent times slight walls have been thrown across as barriers. Such may be an explanation of the case before us. The great scarp of Maudslay may be the outside face of a citadel on the line of the city wall, and forming part of that wall as far as A B C, which is the south-west angle of the citadel, but not of the city. As the moat must have surrounded the citadel, three sides of which were within the city, we should expect two interruptions in the line of wall, one of which we see between B and E. The north-west corner of the citadel should be looked for beyond the northernmost point explored by Maudslay. Thus, A B (the face of the tower) would serve also as city wall, the line being carried on by E N; the line B—C would be only citadel wall inside the city. For holding this citadel theory, however, it is not necessary to regard the making of the scarp A B C as contemporary

with the building of E N, which may have been a later extension of the city to the south, throwing part of the fosse within the city.

3. If A B C is later than E N, it represents a contraction of the city. That this tower was *used* in a later period as the south-west angle of the city is made probable by the discovery of the mediæval wall, to be described in the next chapter.

CHAPTER II.

VARIOUS DISCOVERIES ON THE WESTERN HILL.

Unexpected discoveries—Mosaic chamber—Bath—Cisterns—Drain under gate—Paved street—Ancient aqueduct—Chamber above aqueduct—Section A—B—The Great Tower—Rock-hewn chambers—The tower not on a city wall—Mosaic chamber—A clue to the chronology—Section A—B (*continued*)—Another city wall—Details of masonry—Chamber inside tower—Further course of wall—Incidental finds—Late date of wall—The scarp—A paved street—Relation to the other street—The drainage system.

Unexpected Discoveries.

It will be convenient to gather together in this chapter the various discoveries on the western hill incidental to our search for the ancient city wall. Sometimes trial shafts and tunnels developed unexpected clues, and these, when followed, led to interesting constructions which threw light on the main object of our search.

Mosaic Chamber.

We have mentioned (p. 9) that the counter-scarp of the fosse, running north-east from the tower A B C outside the Protestant cemetery, had been cut away

at D to make room for the wall of a chamber, which thus seems to have been erected when the fosse was no longer used. In the immediate vicinity we came across other remains, all of which are shown on Plate VI. The room near D,* No. 1, which is 18 feet long, has walls composed of small random rubble set in coarse earthy mortar, and well plastered on the inside. On the rock-cut floor were found very slight remains of a mosaic, laid in red, blue, yellow, and white tesseræ, with a border having the guilloche pattern. Fine mosaic floorings enclosed by rude rubble walls, plastered, were common in the fifth and sixth centuries A.D., as seen in the Armenian church discovered on the Mount of Olives, and in the Armenian mortuary-chamber north of the Damascus Gate.† We searched in vain for a cave with tombs under this chamber. This mosaic room seems to be later than the rock-cut floor, which extends under the east wall, and is seen at the same level in No. 2. This compartment is plastered, and is divided in the middle by a partition only a few inches high.

BATH.

Immediately to the east of this is a cutting 5 feet deep, 13 feet long, 5 feet 7 inches wide at the south end, and 7 feet wide at the north end. This chamber, No. 3, appears to be a bath, the bottom of which was approached by three steps. These are now gone, but the shoulders cut in the rock along the

* The lettering in this chapter refers to General Plan I.

† See pp. 211, 253.

south side, and projecting a few inches for the bearings of the steps, can still be seen. The broader north end was at one time covered with an arch, under which a rude rubble platform made a fireplace, itself covered by a low rounded roof. The bath was fed by two small channels from the south.

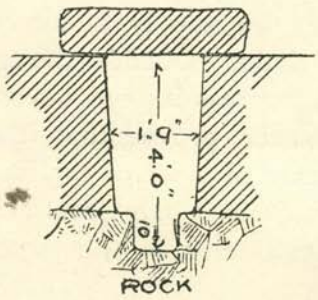
Cisterns.

To the east of the bath is a rock-cut platform, having the level of chambers 1 and 2. A similar platform may be observed south of these chambers. No. 4 represents a common type of cistern found at various points in our excavations. They are all open, having rock-hewn sides, covered generally with two coats of plaster (the inner coat being the ruder, and containing pottery fragments), and are approached by steps (also plastered), which leave a small pit at the bottom from 2 to 7 feet wide and 3 feet high. Thus, no matter how high or low the water might be, the pitcher could always be dipped in without use of a rope. We may call these "stepped cisterns." No. 7 is a bell-shaped, rock-hewn cistern, with a small mouth. Cisterns 5 and 6 may have been originally one, as they are separated only by a masonry wall. The north-west portion of cistern 6 is enclosed by a low partition wall.

Drain under Gate.

The drain running under the gate at N was first struck at R. For a long part of its course it is hewn in the rock, having laid covers, which form part of

the street pavement. Its sides narrow toward the bottom, and 10 inches above the flooring there occur shoulders projecting 3 inches, leaving a channel at the bottom. In width it varies from 2 feet on the soffit of the covers to 1 foot at the bottom of the channel. The height is 4 feet. Where it passes under the gate, its walls on either side consist of three well-squared stones, each stone being 3 feet 8 inches long. Outside the gate it falls rapidly to the south-west, and after 60 feet appears to terminate



SECTION THROUGH DRAIN.

above a steep pitch, where it once poured its filth into the Valley of Hinnom. From R it was traced to the road along a somewhat varying line, but generally to the north-east. At various points it is fed by smaller drains from the north. The whole length of the drain traced was about 470 feet. This task was arduous, as it was silted up to the covers with actual sewage quite different from ordinary débris. It seems to be connected with the system of drainage to the east, as will be seen later.

Paved Street.

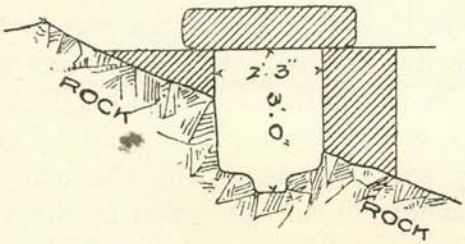
We have shown that the four sills of the gate at N are connected with four pavements inside the gate at corresponding levels. As the street has been ruined badly near the gate, only a few feet of these pavements remain, and when the street again appears *in situ* some 15 feet beyond, only the lowest pavement, *i.e.*, the one immediately above the drain, is seen. This was traced consecutively for 60 feet between Q and R, and was seen in three shafts beyond, opened for supply of air, when we were following the drain. Outside the gate the street was not found, nor was it seen beyond the point S. We have, however, proved that it exists between these two limits, a distance of 275 feet. As beyond S the top of the drain is only 4 feet below the present surface, the destruction of the street is easily explained.

The pavement always shows signs of foot-wear. The width of the street was found at two points to be 18 feet; 8 feet of this consists of paving stones, and the remaining 10 feet of rock cut down to the same level, and also polished by the tread of feet. The paving stones are well laid, the largest measuring about 4 feet by 2½ feet. They form the covers of the drain, and one of these has a large plain Greek cross carved on its under side, showing that the street was used in Christian times. In following the street between Q and R, we broke through the walls of a room built over the disused pavement. This room, which is 12½ feet broad, has a white

mosaic pavement of its own, 2½ feet higher than the street, and its walls are covered with plaster 2½ inches thick, notched with the arrow-like indentations noticed on the side of the tower A B C.

Ancient Aqueduct.

The ancient aqueduct seen at various points was first struck at L (see p. 11), where some 100 feet were measured. Along this length it was built against the rock slope; its north side is partly cut in the rock, its floor is rock, while its south wall consists entirely of rubble masonry. It is covered



SECTION THROUGH AQUEDUCT.

with finely-worked stones. Its dimensions vary from point to point; but at the place where the section was taken it is 3 feet high and 27 inches broad on the soffit of the covers. Like the drain described above, its sides narrow towards the bottom, a few inches above which occur shoulders projecting 9 inches, having a channel at the bottom 8 inches wide. In other parts these shoulders are absent. The walls are covered with two coats of plaster, the inner coat composed of rough lime and pottery fragments, the outer of fine lime. At intervals

masonry-lined manholes some 2 feet square, which originally led up to the surface, may be seen. The slab covering the top of one of these having given way, the shaft was choked, and prevented our progress eastward at a point some 50 feet from L. South of Tower I. a similar man-hole leads up to the present surface, indicating the further course of the aqueduct. At the south-west outer angle of Tower II. it was struck again, and traced under the tower and on to the north-east, the whole distance being about 140 feet, at the end of which our work was arrested by a choked-up manhole.

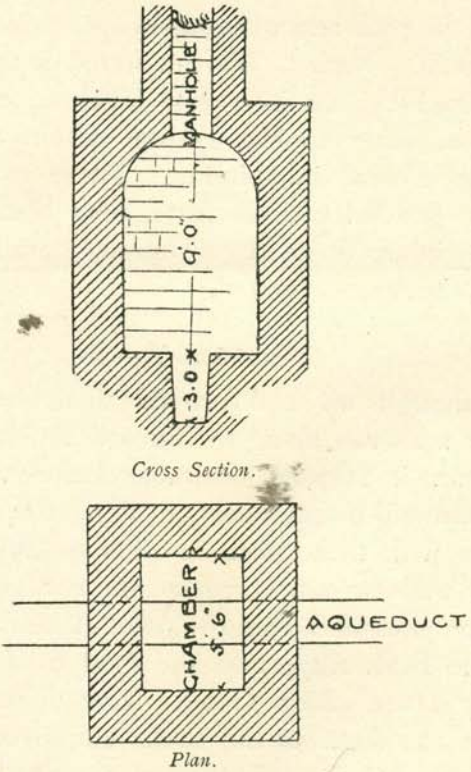
This portion is all rock-hewn, and at first the sides are so high that a man can stand up straight. At points it is roofed with double sets of covers. After 22 feet it contracts both in height and width, till finally we could survey it only by sending a small boy to crawl ahead with the end of a tape and a candle. Some 50 yards to the north-east of the choked-up shaft we came on the portion of an ancient aqueduct discovered and surveyed by Warren for some 400 feet between the road and the point c'.* A large part of this we re-examined. As this portion was choked up at the road, we did not actually connect it with our former work north-east from Tower II., but the identity of the two lines is quite clear. The construction is exactly similar. In both parts we find the double coats of plaster, a similar reparation of the plastered bottom, the same finely-worked covers (in places double), the same peculiar shoulders, the same

* See "Recovery of Jerusalem," p. 233.

marked variations in breadth and height. Moreover, there is a fall of 1 foot in the flooring of the aqueduct between Tower II. and the south-east corner of the Great Tower, around which it bends.

Chamber above Aqueduct.

About 90 feet east of the road the aqueduct passes through a chamber 5 feet 6 inches long, 4 feet 1 inch



Cross Section.

Plan.

CHAMBER OVER AQUEDUCT.

broad, and measuring 9 feet from the apex of its circular roof to its flooring, the bottom of the aqueduct

being sunk 3 feet below this. On the west side of the chamber a manhole, about 2 feet square, could be seen ascending for some 16 feet above the aqueduct-floor, being finally blocked up by a slab. Hence the chamber, though completely buried, is quite free from débris.

West of this chamber the twistings of the aqueduct are due either to avoid a large tower, or to avoid the rock-hewn chambers upon which the tower was built. Near c′ Warren found it to be crossed and used by the later low level aqueduct, which brought water to the Haram within the memory of the present inhabitants. These two aqueducts follow parallel courses for a long distance, as the Augustinians found them running parallel at several points between z′ and t′.

Section A—B.

Although we had proved that the upper and lower walls ran along the lines described in the last chapter, it seemed desirable before we left the western hill to cut a section along the rock at right angles with these lines, in order to see whether any other walls or scarps crossed the section line. This section extended from the point A behind the lower wall to B.M. 2,479·7 on the road coming from Bâb Neby Daûd (Zion Gate). The direct distance is about 400 feet, but the shafts employed in reaching the rock and the following of clues to right and left brought up the length of shafts and galleries to over twice that amount. Indeed, the section may be said to have been begun 70 feet south of A, as the rock

was examined for that distance in our study of the chambers, and in our search for a scarp in front of them.*

Ground was broken at a point 50 feet north of the back wall, the rock was reached at a depth of 31 feet 6 inches, and a gallery driven south. The rock slopes down naturally, and nothing was found but a few rude thin house walls. The red virgin soil still covers the rock, and the back wall of the chamber system, which we saw standing to a height of 11 feet, is built down for 7 feet in a trench cut in this virgin soil. Returning to the shaft, and driving a gallery north, we found nothing but insignificant scarps, probably due to quarrying, till we reached the aqueduct discovered by Sir Charles Warren. We have shown earlier in the chapter how this aqueduct bends around to avoid an older building, which evidently stood in the way of its direct course.

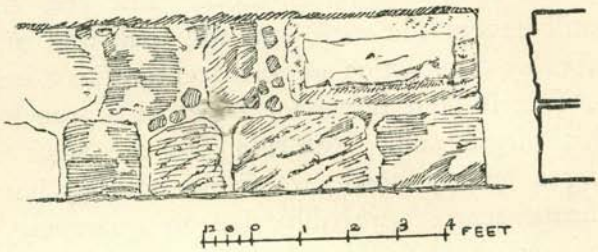
The Great Tower.

This tower is about 54 feet square. Its outer walls are of extraordinary size. The east and west walls are 14 feet thick, the south wall 15 feet 11 inches, while the north wall, which connects it with a series of chambers, is only 7 feet 2 inches. They consist of rubble built in courses averaging 20 inches high, pointed with strong mortar made of lime and ashes. Only the corner stones are dressed, one or two showing a boss.† The rubble

* The results of this section may be seen on Plate IX.

† See specimen at c.

shows absolutely no traces of ever having been faced with dressed stones. These massive walls enclose a chamber only 25 feet square. We sunk to the rock at the south-west and north-east interior angles of the chamber, finding it filled to a considerable height with a solid packing of large rubble set in mortar, which had to be quarried out, and



SPECIMEN AT *c* (SEE PLATE VII.).

which was quite distinct from the walls. Bedded in this filling were found Roman tiles. Pushing towards the centre of the building from the north-east corner, we found a sudden drop in the rock, and quarrying down through the filling for 9 feet, we discovered a rock-hewn chamber, whose roof, now broken, had originally a barrel-vaulted form (see ground-plan, section, and elevations, Plate VII.).

ROCK-HEWN CHAMBERS.

This rock-hewn chamber is not in the centre of the tower built around it, nor is it in the same line. Though not quite rectangular, its dimensions are, roughly speaking, 14 feet long by 10 feet 6 inches wide. The four sides were followed by quarrying

through the filling, but a solid pier had to be left in the middle for a support. Still, almost the entire flooring was seen as we tunnelled under this support, reaching the centre of the chamber. The approach was originally by a door cut in a scarp on the side of the hill, as may be seen by a glance at the rock-levels in section A B, Plate IX.

This scarp is broken away, but one rock-cut jamb of the door and the door-socket still remain. The interior walls are covered with fine plaster, very much broken. In the east, west, and north walls occur the large recesses and small niches seen in the elevations. One recess has a small groove, as if for a shelf. Curiously enough, the rubble filling extends within the recesses. Not a single tomb loculus was found. The Augustinians have found in their property to the east of this place a rock-hewn dwelling, unconnected with tombs, with a similar niche and recess. I have examined the tomb-chambers on the south side of the Valley of Hinnom by way of comparison. I find no chambers without loculi, except two that directly connect with tomb-chambers, and none containing the cupboard-like recesses. We carefully sounded the floor of our chamber, which gave no sign of a cavity below; thus, it has no connection from within with any other chamber. Outside we struck a scarp, over which the west wall of the tower is built, and followed it for 12 feet to the west, when it turns south. This scarp, taken in connection with the level rock in front of the chamber, suggests that it opened on an open court, on the east side of which we found an

entrance to a similar chamber. The rock had been much quarried away before the tower was built, the roof is gone, the rock sides are partly destroyed, and we were able to recover only one dimension—*i.e.*, the length of the north side, which is 10 feet 3 inches. As seen from the plan, the place occupied by this second chamber was in later times built over by the south wall of the tower. In the north side is a recess, 4 feet high, its bottom stepped up 10 inches from the floor, similar to the recesses found in the other chamber.

The fact of the partial destruction of these chambers before the building of the tower favours the idea that they are only ordinary rock-hewn dwellings, that occurred by chance at the spot where a tower was to be built. That the tower was very lofty is proved by the massive foundation walls and by the equally strong filling.

The Tower not on a City Wall.

As seen on Plate VII. and on General Plan I., the tower is not isolated, but projects from a system of chambers. Their walls, however, have not the thickness of the massive walls of the tower, varying only from 6 to 7 feet in breadth, and hence do not appear to form part of a city wall. The base of the wall *l*—*j*, running north, is 10½ feet thick, but a set-back reduces this to 6½ feet. The wall *d*—*e* apparently does not belong to the system, as it is not bonded with *c*—*g*, which runs back of it, and the masonry is different, consisting of small, roughly-

squared stones set in courses, open joint, and the mortar does not contain the ashes always characteristic of the tower system. At *g* we have a true corner, and the character of *f g h* is similar to that of the faces of the tower, but of smaller stones. The round arch *h*—*i* would thus be an addition at the time of the wall *d*—*e*. At *m* the wall *g*—*h* was seen to turn to the north.

At the west of the tower we find the same sort of walls. Bonded into the wall *a*—*b* and running south are thin walls, only 18 inches in breadth ; *a*—*b*, which is 6 feet 6 inches thick, is not bonded into the west side of the tower, although its style of masonry is similar. Work along this line was complicated by a later building (not shown on plan), whose dry stone walls rested on the older foundations, which are always on the rock. This later building has walls only 33 inches thick, standing to a height of 7 feet, the ruined top being only 4 feet below the surface.

As this system of chambers bore no resemblance to the object of our search—a city wall—it seemed unadvisable to pursue it further east than *m*, or west than *a*. Although I believed it to have been originally connected with the tower, yet there remained the mere possibility that the tower once projected from a city wall of proportionate thickness, which had been destroyed near the tower to give place to a later chamber system and to the large cistern, but which might still exist at points further east and west. Accordingly we removed operations to a point (A′) 115 feet west of the north-west corner of

the tower, where a shaft was sunk somewhat south of the projection of the west line of wall just described, in order to allow for a possible, but extremely improbable, divergence of this hypothetical city wall to the south-west. I watched the progress of this shaft with interest, as the deeper the rock the greater would be the chance of finding remains *in situ*. Rock was not struck till we reached a depth of 28 feet 8 inches. At the north end of the shaft was a wall covered with plaster, ornamented with a rude zigzag pattern. Breaking through this wall, we found its thickness to be but slight. It turned out to be the south wall of an open cistern, otherwise rock-hewn, with six steps, plastered, descending from the north. We then pushed our tunnel north for 50 feet to B′ along the rapidly-ascending rock, breaking through rude, thin house walls, none of which showed the characteristics of the masonry of the tower system, which I have shown before to have been embedded in a strong cement, perfectly recognisable.

A similar examination was made to the east of the tower. A shaft was sunk at C′, 160 feet from the north-east corner of the tower, to allow for a turn to the south-east in case the wall ran down to Siloam. At a depth of 9 feet 6 inches was found the rock bottom of a drain. From this point an open trench was driven north by north-east, the depth of soil being slight. We passed four small channels, not resting on the rock, evident feeders of a cistern to the east. They are only 4 inches square, their floor and walls are formed of a concrete of

ashes, chips, and lime, smooth inside, and they are covered with small slabs.

After pursuing our open trench for 38 feet, we observed that the soil, though never more than 10 feet deep, became firmer, and we were able to push on in a low tunnel, at a point where a pavement occurred 30 inches under the surface. Breaking through a channel similar to those just described, we followed along thin house walls at two levels. The corner house has a mosaic of white tesseræ on the rock. The later is only 3 feet above the earlier, has its own white mosaic, and is itself buried by a stone pavement. The importance of this bit of pavement and of the one a little to the south appeared later. It is interesting to note that at D′ we have three systems of buildings of different dates, none older than Roman times, none showing the characteristic work of the tower system, and all in the slight depth of 10 feet. The length of the trench and tunnel from C′ to D′ was 90 feet.

To prove a negative in archæology is difficult. To show that a thing does not exist is one thing, to prove that it never did exist is another, but all the evidence is against the idea that the large tower ever projected from a city wall. We have shown that the walls now connected with the tower cannot be city walls, and our trenches at A′ and C′ have proved that, if it ever was on a city wall, this was entirely destroyed at points 115 feet west and 160 feet east of the tower. Such a wall should have the extraordinary thickness and hardness of the tower walls. These are from 14 to 16 feet thick, and their hardness was proved

when we had to quarry through the west wall in following the rock-hewn chambers. So firmly fixed was the rubble all through the heart of the wall that it would have been easier to quarry the solid rock. It is hard to see how such a wall could have been destroyed beyond all recognition.

Mosaic Chamber.

About 12 feet north of the wall *k*—*l* occurs a chamber, 25 feet by 19 feet, with a mosaic flooring from 2 to 3 feet above the rock. The walls of the chamber are almost entirely ruined, and are of slight thickness.

The mosaic is in almost perfect preservation (Plate VIII.). Though buried under 15 feet of soil, by a careful directing of two tunnels we were able to recover the complete design. The centre consists of two parallel rows of squares, eight in all, having various designs, surrounded by a bordering of the guilloche pattern. Twenty tesseræ occur to the foot, the colours being red, black, and white. The black and white checks in the centres of the two squares marked E on the plan are striking.

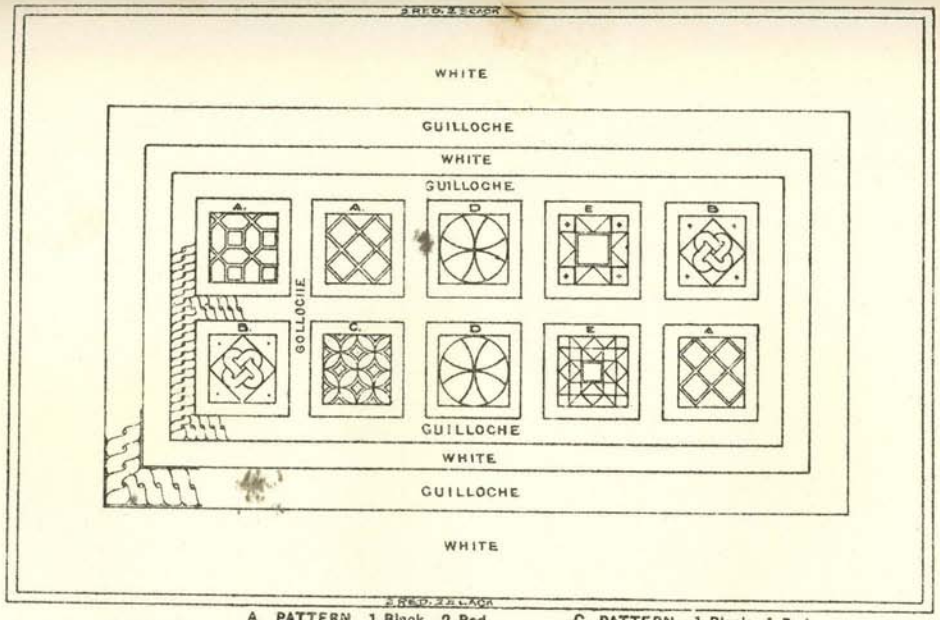
A Clue to the Chronology.

Coming from the north, and running across the chamber, there is a drain 2 feet 6 inches broad, and at least 5 feet high. It is cut off by a made-up bottom between the chamber and the wall *k*—*l* of the tower system. It is in line with the similar drain to the south, butting against the upper city wall. A drain was also observed against the outside of the

To face page 64.

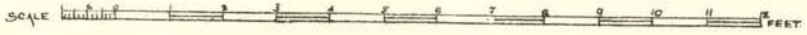
DETAIL OF MOSAIC.

PLAN OF MOSAIC.



NOTES.

A. PATTERN. 1 Black. 2 Red. C. PATTERN. 1 Black. 1 Red.
B. " Red. White. Black. D. " 1 Red.
E. " Black and White, Centre. 2 Red Outline. Black and White Checks.
All on White Ground. 10 Cubes = 6 Inches.



F. J. Bliss.
Rob^t. A. Dickey

wall *g*—*h* abruptly cut off by a wall of the tower system. This may be a branch of the mosaic drain. This latter appears to furnish a key to the relative chronology of the various discoveries at this point. The drain is, of course, later than the mosaic. It also seems to be earlier than the tower system, which interrupts its natural path, though it is directly cut off by the made-up bottom only 12 feet north of the wall *k*—*l*. Even supposing that it turned west, and is identical with the drain at *j*, in this case it was cut off by the tower system. We thus have the mosaic as the oldest, and the tower as the most recent, of these various constructions. The mosaic can hardly be older than early Roman times.

SECTION A—B (*continued*).

To return to the section A—B.[1] From the mosaic north to the fork of the road, in our gallery driven on the rock, nothing appeared but a few rude, thin house walls. These, though carefully examined, are omitted from the plan, as they would merely appear as unedifying scratches. Under the fork of the road at E′ we struck a wall, standing to a considerable height, and showing a vertical joint. Breaking through, we found that this indicated the outside corner of one house, with a wall of another system of houses extending from it to the east. The south wall of the house to the left was roughly built in courses from 15½ inches to 27 inches high; its east wall, though clearly traced by the débris banked

[1] Plate IX.

against it, consists of much broken rubble, without a decided face. It evidently had been used as the west wall of the building to the right. This was traced for some 35 feet to the east, and the thickness of its wall was found at three places to be only from 4 to 5 feet. The masonry consists of roughly-squared rubble, set in courses 12 to 14 inches high, resting on ruder foundations. Partitions were found running to the north and south. Some few feet from the end of the tunnel, a drain, coming from the north-east, breaks through the wall. This drain is 2 feet broad, about 4 feet high, and its bottom is not on the rock. In character it resembles the drain crossing the mosaic, with which it seems to be identical.*

Returning to the corner of the house at E′, described above, we pushed north along its east wall under the road, when we came upon a small cistern extending back of the house, thus indicating the northern limit of the latter, although its north wall is ruined. This cistern has curiously-curved sides, and its walls, which vary from 18 to 22 inches in thickness, are plastered. Some 10 feet to the north is the mouth of a large bell-shaped cistern, hewn in the rock. Between these two cisterns we passed through a compartment only 5 feet broad, with plastered walls. At this point at the top of our tunnel appeared set foundations, resting on fallen débris, through which the tunnel was driven. Three or four feet

* My reason for describing these walls, which show features too small to appear on the General Plan, is simply to prove their insignificance, and to show that they could not possibly belong to a city wall. Apart from this their importance is *nil*.

beyond the cistern's mouth we struck the back of a stone. On our removing this, a quantity of loose shingle poured into our tunnel through the orifice. When the stream of shingle stopped, the foreman was able to stick his head through the hole and announce that the removed stone, the back of which we had seen, belonged to a wall facing north. However, attempts made to enlarge the hole resulted in a fresh stream of shingle and larger stones. I could now put my head through to see how dangerous a cavity had been made under the road. Accordingly we were forced to open a shaft from the road, and sank down near the north face of this wall, which consists of quarry-picked stones, badly squared, pinned up with chips and set in coarse mortar, the courses varying from 11½ inches to 13½ inches high. This face rests on the rock, and was seen standing to a height of 11 feet to a point only 6 feet under the road. The question of its breadth is not clear, but in no case does it appear to be city wall. If the foundation work seen at the top of the tunnel belongs to it, then it might have been 8 feet thick, but in this case it was built over the choked-up cistern, and its south face rested on débris. This fact would militate against its being a city wall, as the outer face of a city wall at this point should face south, and it is unlikely that the outer face of a city wall should rest on débris while the inner face rested on rock. If the mouth of the cistern were outside of it, then the south face (now ruined) could only give a breadth of 4 feet, too small for a city wall.

Continuing towards the north 7 feet beyond this

wall, we found steps descending at the angle of a cistern or reservoir. Walls and steps are of rock, both covered with cement of lime and ashes. The construction is similar to that of the "stepped cistern" figured on Plate VI. Its length north and south is about 19 feet. The east and west dimension was not ascertained.

Another City Wall.

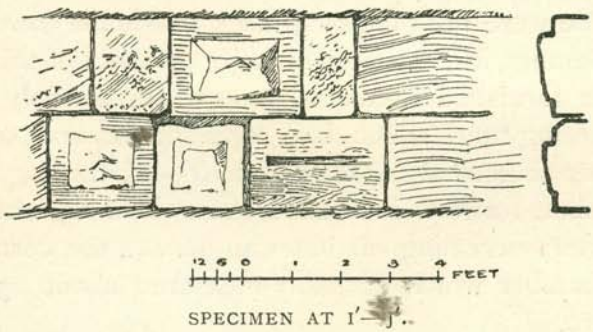
Up to this point we had pursued our long section A—B without having crossed the path of a city wall north of A; but here, almost at its completion, we struck a tower which proved to be an angle of a wall which once enclosed the top of the western hill.

The course of this wall was followed for some 650 feet from the point F′ along various turnings to the point T′. The two towers are built of well-dressed masonry, down to the rock, whereas the wall itself consists of rude rubble, not always set in courses. Dressed work was found only at one point, K′, where we have on the *inside* of the wall one course of small dressed stones projecting 9 inches from the rubble, which stands for 14 feet above the rock. It is possible that the part of the wall remaining was always underground, the upper dressed courses having entirely disappeared except in the single inner course at K′.*

* The Ophel wall discovered by Warren butting against the south-east angle of the Haram Area presents a similar peculiarity. About 25 feet of rubble are found under the well-dressed masonry of the wall, whereas the towers consist of dressed work to the rock (see folio Plate XI., Excavations at Jerusalem).

Details of Masonry.

This rubble, which is built with mortar, varies from 9 to 13 feet in thickness, and stands to a considerable height, its top being from 3 to 7 feet under the surface. At F′ 34 feet of the face were seen, resting at places on a scarp, from 2 to 3 feet high. The rock, explored for 40 feet to the south, was found to drop gradually without sign of fosse or counter-scarp. At F′ the inner face was also found. The outer face could not be traced to the tower angle, owing to a cistern, jealously guarded by the



SPECIMEN AT I′—J′.

proprietors. The south wall of the tower has been much pillaged for stones as well as shaken by earthquake. At the external angle G′, one course of the facing masonry is still *in situ*, and was traced towards the east, along the line G′—H′, to within a few feet of the corner H′, which is missing. The corner I′ remains, and almost the entire length of I′—H′, dwindling down to one course and disappearing within a few feet of the missing corner H′.* At J′

* See Plate IX.

the dressed masonry of the face J′—I′ is bonded with the main rubble wall running north. The character of the tower masonry is shown by the specimen at I′—J′. The courses vary in height from 14 to 25½ inches. It presents an appearance of patchwork, as various kinds of stones are found; some are not dressed at all, others are plain, faced with the fine Crusading furrowed dressing (in cases touched up with the comb-pick), while others have margins, with flat projections, and are chiselled all over.

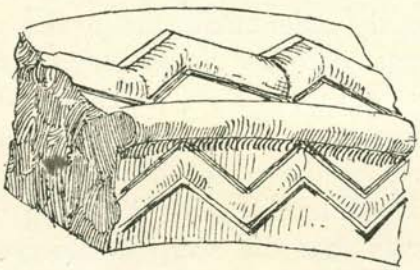
Chamber inside Tower.

We were not obliged to seek inside the tower for a chamber, for, curiously enough, evidence of this had been furnished by an earthquake (or possibly by a battering-ram) which had loosened several of the upper courses of the tower-face G′—H′, causing them to slide forward in a solid mass (held together by mortar) revealing an inner angle, *i.e.*, the corner of a chamber which probably measured about 25 feet by 10.

Further Course of Wall.

The course to the north of the main wall beyond J′ was traced from shafts at J′, K′, L′ and M′. That at J′ showed the angle it forms with the tower; that at K′ showed the inner angle of the wall—the part running west (built over a more ancient stepped cistern) being in line with the inner face of the same wall at F′. The foundation work at J′ was very rough, showing no decided face; but this was recovered again at L′, whence it was traced north for

23 feet. Here, in breaking through the wall to ascertain its thickness, we found built into the rubble a bit of late Byzantine zigzag moulding, of which a sketch is given. At M′ the thickness was again ascertained, and the face traced in line with L′ for 35 feet to the north, where it became much ruined, but appeared to turn to the east. This turn was verified by a shaft at N′ in the land of the Augustinians, where the face was found in the desired line. Here the breadth on the rock is 13 feet, but the foundations are stepped up, leaving the upper part



MOULDING BUILT IN WALL.

narrower. It was traced for some 16 feet east, where it began to run out, but at O′ it had been noticed by the Père Germer in his excavations, and found to cut into the southern part of a Byzantine atrium, obviously older. Here the facing stones have plainly been removed, leaving a breadth of only 7 feet, but we verified the continuation of the wall for some 30 feet. A little further east Père Germer had supposed there was a tower, as he had come across a mass of masonry, but neither its faces nor its junction with the wall had been

determined. At P′ we found the angle it makes with the wall into which it was bonded. In the western side of the tower we found the mouth of a cistern, the greater part of which was outside. It had probably been vaulted once. Most of this western side, P′—Q′, was destroyed, but enough was left to determine the line. The face Q′—R′ is 44 feet in length. The corner Q′ is wanting, but beyond this the lowest course remains for about 15 feet in length, when an interruption occurs. The corner stone at R′, however, is still *in situ*. Where the break occurs we found a pavement set on the rock, obviously older than the tower, which had been built over it. The corner stone R′ stands on a scarp, 9 feet 6 inches high, which runs northward, being 12 feet high at S′. At this point, however, the east face of the tower does not stand on the scarp, but is built up against it, being 3 feet out. This suggests that the scarp is older, and this is further proved by the fact that the scarp runs on north, while the wall S′ T′ butts against it; or, to speak more strictly, the wall S′ T′ joins the wall R′ S′ 3 feet out from the scarp. At S′ ten courses of the wall remain standing. The inner face has been clearly robbed for stones between S′ and T′, leaving a thickness of from 7 to 8 feet. The rubble is set in weak black lime, the courses varying in height from 11 to 14 inches, and the stones averaging 15 inches in length. At T′ the wall runs out, the rock being very near the surface.

We have noticed that the tower at H′ is built of well-dressed masonry, in contrast with the rubble of

the wall. This peculiarity is repeated in the tower we have just referred to. Only part of the lowest course of the face Q′—R′ remains, but the character of the work could be studied from many stones fallen outside. They resemble the stones of the other tower, of which some are plain-faced, others margined with flat projections. Many of them show the fine diagonal comb-pick dressing peculiar to Crusading work. They average about 22 inches in height. The course *in situ* follows the level of the rock, which is partly sloping; where it is level, the stones are 33 inches high, and average 19 inches in breadth. One has certainly been re-used, as it has a bowtell moulding worked on the angle. They are well squared and jointed, and set in fine lime.

Incidental Finds.

In our work about this wall we came across various remains. Apart from the drain, which will be described later, we found three of the "stepped cisterns." Outside the wall south of L′ there is a small room, perhaps older than the wall, as it has a white mosaic flooring, itself buried by a pavement. At L′ there is a fine rock-hewn cistern, the discovery of which brought joy to the proprietor. Near by was found *in situ* the base of a column. Near F′ the city wall was plastered and covered with a bit of rude, coloured fresco, in the Gothic style, with vine-leaf pattern, probably belonging to a later dwelling built up against the wall. There were also signs of rude buildings to the south of F′.

Late Date of Wall.

That this wall is late is proved (1) by its being built over a Roman pavement at R′, and over a Byzantine atrium at O′; (2) by the late Byzantine moulding built into its foundations at L′; and (3) by the dressing of many of the stones in the two towers, which show the parallel furrowed tooling characteristic of Crusading times. It was evidently constructed to defend the summit of the western hill, and the parts seen run on the lines of the wall shown on the map published with the works of Marina Sanuto, 1321 A.D.* This wall includes the Cœnaculum, and bends around to the point now occupied by the Burj-al-Kebrît of the present city wall. Now, of the wall discovered by us we only saw the central portion, but we have ventured to extend it both west and north by dotted lines joined respectively to the scarp opposite F and to the Burj-al-Kebrît for the following reasons: While the tower A B C, with the wall running north-east, was probably originally erected in very ancient times, the number of large stones fallen around it, which bear on their margins the peculiar diagonal furrowed tooling, suggest that it was still in use in Crusading times. Unfortunately, the proximity of the Cœnaculum (held sacred by the Moslems as the tomb of David) prevented our testing the connection of F′ with the scarp opposite F; but as it is probable that city walls of the same period passed

* See also "Les Eglises de la Terre Sainte," De Vogüé.

through both points, their identity is strongly suggested. We should notice, however, that the fosse seen at F is missing at F′, where, indeed, the wall stands on a scarp 3 feet high; but the rock followed to the south for 40 feet falls so rapidly as to allow of no ditch. It is possible that the late wall made use of only parts of the old line.

As to the course beyond T′ we have the following hints: Some time before our work the Augustinians had removed blocks of masonry at U′ and W′, both of which appeared to point north. As the bit at U′ was built without mortar, it seemed more probable that the bit at W′ once followed an angle of the wall, especially as it was pointing in general towards the Burj-al-Kebrît. For here below the present tower, and extending about in a line with its west side, there is exposed a bit of thick wall, broken off short, but facing the west, built of masonry similar to that of the two towers of the city wall in question. Continuing the line from T′ to W′, and then connecting W′ with this broken-off piece of walling, the latter falls into the scheme as the west side of a tower. This point was too near the present city wall for excavation, but we dug two shafts between W′ and Burj-al-Kebrît, unfortunately with no positive results. The first was sunk a few feet northwest of W′, and from its bottom much tunnelling was done. Several times bits of walling gave us supposed clues, but these always turned out to be of slight thickness. A wall was also examined about 150 feet north of W′, but with similar results.

The Scarp.

I have mentioned the scarp R′ S′ V′, which is older than the wall we have been describing, as at S′ the latter turns off from it towards U′. It is held by some that the ancient upper city once had a wall of its own, swinging around the western hill and running on to the cliff on the west side of the Tyropœon Valley, opposite to the Haram Area. As the scarp between R′ and S′ is from 9 to 12 feet high, and runs in the proper direction, further examination was given to it. It was hoped that it might represent the base of a wall older than the one just mentioned, and that, although this old wall was destroyed between R′ and S′, yet a further following of the scarp might reveal parts of it still *in situ*.

At V′ the scarp bends at right angles, running east for a few feet, where it again turns and runs north, growing more insignificant in height, until, after a few irregular bendings, it dies away. At R′, immediately under the tower, the scarp is 9 feet high, and an angle has been cut back to give a good corner to the tower foundations, but that the scarp does not bend around the tower in the line Q′—R′ was proved by our finding the rock level for 11 feet south of the corner Q′. Southward, from the tower corner at Q′, the scarp drops to an insignificant height, and after some arbitrary turnings disappears. From the base of a shaft at Y′ the rock was examined east and west for 40 feet, but no scarp was found. Thus, between R′ and V′ the scarp runs pretty straight for 100 feet, with an average height

of 10 feet; but beyond these points it becomes irregular, both in height and direction, till it dies away at either end. We conclude that, like many similar scarps on this western hill, it was due to quarrying, and was not designed for a base of a wall.

This clue having failed, we made further search for the ancient wall by driving a tunnel westwards from v′ almost to the road from Bab Neby Daûd (Zion Gate). The depth of soil was slight, and no traces of a wall were found. To the east and south-east of v′ the rock had been carefully examined by the Augustinians, but no clues were found. The bits of masonry removed at the points u′ and w′ are both in line with the Crusading wall, and if they do not belong to it, probably represent later constructions.

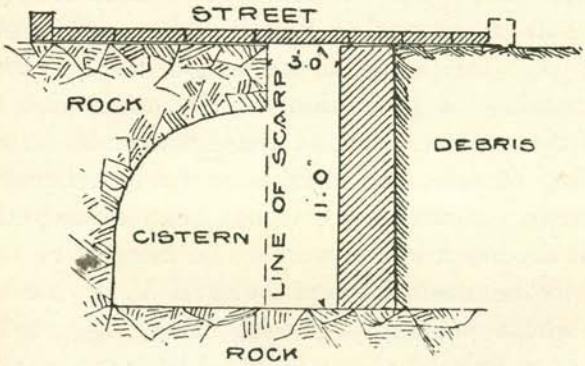
In the shaft,* a few feet north-west of w′ (contour level about 2,404′), rock was found at a depth of about 15 feet, with a scarp descending for 10 feet more, the base of which was thus 25 feet below the surface, or some 50 feet below the contour 2,429′, which is the level of the top of the cliff (opposite the Haram Area) on which the supposed wall was to run. Hence work further down the hill appeared to be useless, and as the scarp near w′ was not surmounted by a wall of any thickness, the search was abandoned. As this part of the hill was within the city during a large part of the history of Jerusalem, the disappearance of all traces of a Jewish wall, if such ever existed here, is not a matter for wonder.

* This is shaft 1, section C—D, Plate XV.

A Paved Street.

The pavement found under the corner of the tower at R′ is part of a paved street, which was found to run from X′ to C′, as along this distance of over 500 feet the pavement was found at eight different places, all in one general line. The portionat V′ was discovered by the Augustinians before we began our work, and was described by Dr. Schick in the *Quarterly Statement* for 1894, p. 18. The rock platform, rising above the street level to the north, and the scarp cutting down through the midst of its extended line to the south, seemed at the time to militate against the theory that it formed part of a street; but further work done here by the Père Germer and ourselves showed how these difficulties were overcome. The street bends to avoid the platform, which measures about 17 feet east and west by about 30 feet north and south. We traced it around three sides, and for a few feet beyond. A shaft sunk at X′, 80 feet to the north, revealed in the same line a single paving-stone, which may safely be assumed to belong to the street, as at every other point where we had struck it it was more or less robbed of stones. The difficulty of the scarp was overcome as follows: This had been cut back to form parts of cisterns, the east side of which was formed by a wall 3 feet from the scarp, and the distance between the top of the scarp and this wall was easily spanned by the paving-stones (see section at V′). In places where the scarp was not high enough the street was partly carried upon a vault.

At v′ the street is 18 feet broad. The paving-stones, which are well squared and set, vary in size, the largest being 6 feet by 4, and the smallest I noticed is 29 inches by 18. On the west side runs a kerb, 10 inches high. It slopes here very gently to the north. At R′, where the tower is built over it, the stones correspond in size to the smaller ones at v′; here only 12 feet of breadth were seen, but as the kerb is missing, it was probably wider. At Y′



SECTION THROUGH STREET AT V′.

the east kerb is *in situ;* the west side of the street was made by levelling the rock, giving a breadth of 12 feet. This feature was observed by Dr. Schick at v′, and by us in the street leading to the gate at N. At z′ we found 18 feet of breadth, both kerbs being absent. At D′, as mentioned before, it buries two floorings of white tesseræ. Near C′ it is only 30 inches under the surface. These last two bits were discovered months before we traced the rest of the street.

Between x′ and c′ the street has a fall of 1 in 27. As the whole length was not seen, we cannot say whether or not it was stepped down like the street found in the Tyropœon.

As to the *terminus a quo* of this street, we suggest that it may have been connected with the Roman colonnade, traces of which may still be seen in the street running south from the Damascus Gate.

Its *terminus ad quem* was unfortunately not determined. From the fact that it crosses tesseræ pavements at D′, we gather that it is late, and probably belongs to the period of the later of the two walls to the south. A projection of the street line south from c′ crosses the line of these walls near W, where nothing remains but foundation rubble; hence, if a gate ever existed there it has been destroyed. A slight diversion to the west would bring it to a point midway between Towers IV. and V. of the upper line, whose proximity to each other suggested that they once flanked a gate; but we have shown (p. 27) that just at this point the fine masonry is destroyed down to the foundations. These are all that are left between W and X. There remains a portion 55 feet long which we did not explore, owing to the never-ending question of landownership. We were not aware of the existence of the paved street till months after we had finished with the wall and had left the spot, so the part between V and W still remains unexcavated. However, the lofty tunnel we drove from W, 90 feet to the north-west, revealed no paved street leading to this point.

Relation to the Other Street.

This street has evidently some relation to the one traced from the point S to the gate at N. Their similarity of construction, shown in the levelling of the rock to increase the width, in the width itself—about 18 feet in either case—and in the appearance and setting of the paving stones, points to a common date. Whether the street S—N be a direct continuation of X′—C′ or merely a branch from it, the fact that it leads to a gate makes it improbable that another gate existed so near to N as W. Hence, though the matter is not determined, the balance of probability is in favour of the view that the gate at N was the egress from the city for those coming down the street at X′.

The Drainage System.

We may now examine the various bits of drain found all over the western hill, and see whether they may be reduced to some system. From a point north of N′ to the point midway between Towers IV. and V. (a distance of about 600 feet in almost a straight line), we have struck seven sections of drain, which in the plan we have connected by dotted lines. The identity of the drain at L′, with the two parts seen north, is undoubted. At L′ it has masonry walls 3 feet 6 inches high. Here it cuts through a previously built and ruined rock-hewn "stepped cistern." The piece seen near the tower H′—I′ is partly rock-hewn, with a breadth of 3 feet. Near E′ it is 4 feet high, with masonry

walls, but only 2 feet broad. The drain running to the gate at N, described earlier in this chapter, may have branched off from the drain we are now dealing with between H′ and E′. The levels of S and E′ permit of this theory. Some 50 feet south of E′ the drain crosses an earlier mosaic. Here it is at least 5 feet high and 2 feet 6 inches broad. Beyond the mosaic the drain seems to divide into three branches. The first, to the south, is indicated by the dotted line connecting it with the 20 feet of drain cut off by the foundations of the upper city wall between Towers IV. and V. This branch is only 3 feet 9 inches high, with a breadth diminishing from 27 inches at its cemented bottom to 20 inches at the top. The second or south-western branch is suggested by the bit only 20 inches wide, seen near Tower T of the lower line. As this is cut off by the face-extension effected at the third period of the tower, it belongs to the first or second periods of the lower line, and hence must be older than the southern branch, which, being cut off by the foundations of the upper line, must be later than the lower line. The third or south-east branch is suggested by the bit of drain 28 inches wide seen in the angle of the building some 25 feet south-east of the mosaic, and by the bit further to the south-east near C′, which is 4 feet high, 20 inches broad, with masonry walls and a rock bottom.

CHAPTER III.

THE WALL FROM THE JEWISH CEMETERY TO OPHEL.

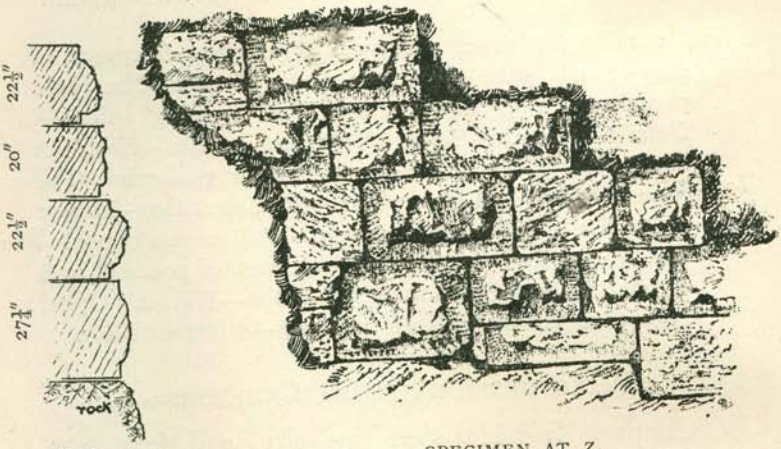
Wall outside Jewish cemetery—Loss of clue—Recovery of clue—Small gate—The gate south of pool—The three periods — Tower near gate — Wall crossing valley — Details of work—Signs of buttress system—Shaft on other side of valley—Buttress system confirmed—The corner buttress—Later towers—Recapitulation—Extent of Old Pool—Rock-hewn conduit—Wall to west of pool—The scarp—Relation between wall west of pool and wall crossing valley—Scarp found by Guthe—Warren's Ophel wall—Comparison with our masonry—A few statistics.

Wall outside Jewish Cemetery.

In Chapter I. we traced the city wall from the fosse near the Protestant cemetery to the point Y* where it enters the Jewish cemetery, under which excavations could not be made. Assuming that the wall did not alter its direction under the cemetery, we dug a trench at right angles to the extended line at the point Z on the other side of the cemetery, and about 330 feet from Y. The wall was found immediately under the high terrace which forms the southern boundary of the cemetery, about 30 feet

* See General Plan I.

north of the extended line. This is explained by the altered direction of the wall at Z, which points 15° more northerly than the bit at Y. A comparison of the specimen at Z with that at Y (p. 39) will show their identity. In both cases the setting is characterized by wide vertical and horizontal joints, the only difference being that at Z there is a set-back on each course of from 2 to 5 inches. In both cases we find plain-faced stones mingled with others



Section. SPECIMEN AT Z.

having irregular comb-picked margins and rough projecting bosses. At Y the courses vary from 16¼ to 25½ inches in height, at Z from 20 to 27¼. The fine trowel-pointing at Y appeared to be later than the wall itself, and is absent from Z, where no sign of mortar was observed. At Z the wall is 9 feet thick.

This wall we traced east for 30 feet. After 13 feet it steps on to a scarp which varies in height from 3 feet 6 inches to 6 feet, and runs along this

for 17 feet more, where it is ruined; the scarp, however, continues rising gradually up to the surface, and merges into a natural cliff some 30 feet high, which is exposed for a distance of 90 yards, along which we can trace cuttings, where it has been stepped out to form beds for stones, which have themselves disappeared.

Loss of Clue.

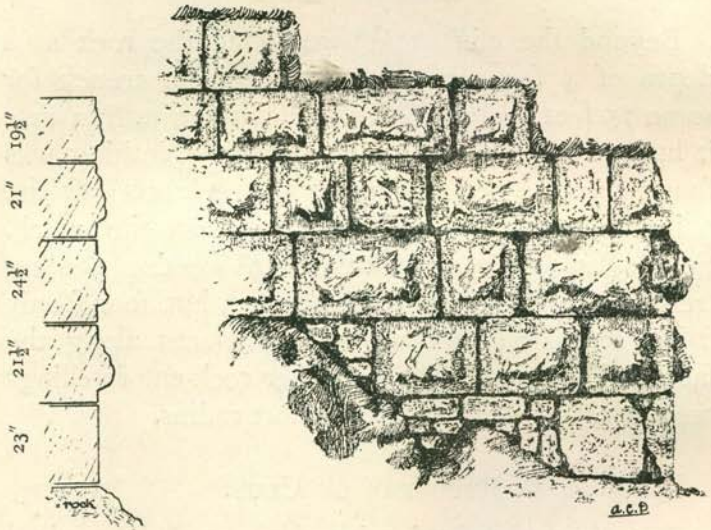
Beyond the cliff at A^2* we found the rock at a depth of 4 feet, and examined it by a trench for some 75 feet to B^2 in order to catch the wall in case it had swung off to the north-east. Nothing was found except a bed of lime on the rock at A^2, at the point where the inferred line of wall cut the trench. Somewhat to the north-east of B^2 we dug another trench at right angles with the first, but found only a low scarp, recessed at different places along the face, and plastered over like other rock-cut dwellings seen at other points within a short radius.

Recovery of Clue.

The direct clue having been lost at A^2, it required considerable study of the ground before we could decide upon the next spot for search. As no sign had been found that the wall turned to the north-east, it seemed probable that it included the Pool of Siloam, and hence should take a south-easterly course beyond A^2. But, as we learned from the

* For the rest of this chapter the lettering refers to General Plan II.

Fellahîn, for some 100 yards along the supposed line of wall, the soil, which has but a slight depth, had been recently disturbed; in parts the very rock had been quarried away, and in others cut stones had been dug up and removed. This looked like the destruction of the wall. At c^2, however, the side of the slope has been less disturbed, and as it seemed to us to be a favourable position for the



Section. SPECIMEN AT c^2.

angle where the wall should bend to include the pool, we drove a gallery into the slope. Within a few hours we struck a wall on the rock, here 18 feet below the top of the slope. A specimen of the masonry (c^2) is given. A comparison of this with the specimens at Y and Z will show that this is the same wall which we found entering the cemetery

and emerging therefrom. To describe it would be simply to repeat the details given before. Pushing to the south-east, we soon came to a strong corner, which proved to be the ingoing angle of a gateway. Here six courses of masonry were exposed, varying in height from 19½ to 24½ inches, the largest stone being 3 feet 5½ inches long.

Small Gate.

Returning to C^2, we pushed along this wall to the north-west, hoping to make a connection with the point A^2. At 28 feet from the gate-corner a slight offset occurs. Here four courses remain. Twenty-nine feet beyond this it rises up on a rock-scarp 8 feet high, which strikes out at an angle from the wall. Beyond this the wall is very much broken, but sufficient of it remains to show its direction. At 75 feet from the gate-corner four courses remain, the rock being 13 feet below the surface; but immediately beyond this it entirely disappears, though a slight cutting in the top of the rock indicates that the wall ran on straight. Twenty-two and a half inches out from this supposed line we found sinkings in the rock indicating the sockets for a small door, 4 feet 10 inches wide. No masonry is *in situ*, but we judged that the door had been in two leaves, as we observed the right and left seats for the gate-posts, as well as the central bolt-holes. The post-sockets are irregular in shape, the left one roughly measuring 8 inches by 12 inches, with a circular sinking in its midst which has a diameter of

3½ inches, and a depth of 4½ inches over all. The right socket measures roughly 14 inches by 9 inches, and is 5½ inches deep. From the left socket the rock is almost level to the bolt-holes, but falls 9 inches between these and the right socket. The small width of this gate, together with its proximity to the gate to the south-east, makes it improbable that it was an exterior gate of the city. It may either represent a door leading from the wall to a tower, now both ruined, or else it may be a gate to some construction prior to the building of this wall.

Various attempts were made to find a connection between the wall traced 75 feet north-west from the gate and the point A^2. Shafts were sunk on the supposed line, tunnels were driven at right angles to allow for a change in direction, but everywhere we found that the soil had been disturbed and pillaged, confirming what we had already heard from the Fellahîn. However, that the wall once ran on the line indicated seems altogether clear from the considerations above given.

Outside this wall, between the large and small gates, were signs of buildings evidently later. At C^2 a wall butts against the city wall at right angles, and north-west of this point a plastered wall of slight thickness, built of rough rubble, lies 4 feet out from the old wall.

The Gate South of Pool.

The gate near C^2 was found buried under the slope of the hill at such an angle that the débris above its

right side is very slight. Hence the right door-jamb has quite disappeared, and not even the door-sills remain at this end. The remains still *in situ* may be seen in the perspective sketch, Plate X. Here we observed the ingoing angle of the wall, the left door-jamb, the door-sills of various periods, and the lines of steps leading up to the gate. A careful study of the plan and sections will show three periods of construction. The gate as now standing is set back 6 feet from the line of wall, the ingoing angle being slightly obtuse. This wall was covered with plaster, except on the projecting bosses; and on knocking this off we found two styles of masonry. From *a* to *b* the work is the same as in the main wall, but from *b* to *c* there is a rough filling in (see section *A*—*B*). This proves that at the earliest period of the gate the jamb was further out than the present existing one, the angle occurring at *b*. The lowest stone, *d*, of this jamb was actually found; this fortunately had been allowed to remain, as it in no way interfered with the later gates, whose sills are at a higher level. The long bossed stone in the wall *a*—*b* is roughly broken off where it joins the rude rubble; this suggests that it had once been bonded with the first period jamb which was carried up from the stone *d*.

Examining the gate-opening itself (which we have just proved to have been set back), we find the polished stones *e*—*e*, which represent the inner and outer sills of the third period. The arrangement of sockets in the inner sill shows that the gate must have been on two leaves, socket No. 2

being the bolt-hole for the overlapping leaf at the centre of the gate. The small side-sockets 1 and 3 were for the extra bolts placed further in on the leaves. Socket No. 4 is in its present position useless, for, being close up to the outer sill, it leaves no room for the thickness of the door. Hence the stone in which it is sunk is probably re-used. Taking socket No. 2 as the centre of the gate, we have an opening of 9 feet 6 inches over all. The socket behind the jamb is, of course, a seat for the gate-post. Removing the stone in which this socket is cut, we found directly below it the inner sill of the second period, and in the angle a larger socket, which projects beyond the line of the present jamb, as may be seen by the dotted line on the plan.* This jamb, hence, cannot belong to the second period, but the stone *l* (see front elevation) furnishes the missing link. This is clearly cut out to let in the third period sill *e*—*e*, and in its original state was the base of the second jamb : for not only does the outer sill *g* of the second period abut against it, but the socket of the corresponding inner sill falls well behind it. It is quite possible that the second period outer sill remains entire along the line *g*—*g*, as this measures 9 feet 6 inches, which if the width of the opening of the third period. Unfortunately, at the further end the stone of the

* The upper gate-post socket measures 9 inches by 6, and is sunk 1½ inches; the lower gate-post socket measures 12 inches by 7½, with a 2 inch sinking. Socket No. 2 is 3 inches square, and is sunk 1 inch; sockets 1 and 3 measure 2½ inches by 1, with a 1 inch sinking.

inner sill, which should contain the corresponding gate-post socket, is missing.

The position of the sill of the first period is proved by the well-polished steps leading to the gate. A careful comparison of their different levels resolved them into two distinct series, one higher than the other. The upper set, indicated by *h*, leads directly to the sill *g*, and hence belongs to the second period. The lower set *i* (part of which are rock) would thus lead to an earlier sill, *i.e.*, that of the first period, really formed by the top step of the series *i*. A glance at the sections will show that it would have been impossible to have verified the socket of this first period without tearing the whole gate to pieces—a thing we were unwilling to do. There were no steps leading to the third period sill *e*—*e*, as a road at this time had been raised up along the line *k* to reach the gate. This road was observed in the section of the cutting, where a layer was found much harder than the débris above it, as well as darker in colour. It is fortunate that the makers of this road did not remove the steps, but simply covered them up.

The Three Periods.

To recapitulate: The part of the left ingoing face of the wall between *a* and *b* belongs to the three periods, the part between *b* and *c* to the second and third period. The third period jamb is, of course, the present existing one; the second period jamb once rose from the stone *l* before it was cut out for the insertion of the upper sill; the first

period jamb is indicated by the stone *d*. Thus, the position of the door-jambs, and probably also the central axis of the gate-opening, were shifted from period to period. The sill of the third period is *e*—*e*, one gate-post socket and all the central bolt-holes being preserved. The sill of the second period is *g*—*g*, buried by *e*—*e*, hence the central bolt-holes could not be verified, and the gate-post socket was found only by removing the upper sill at the corner. The sill of the first period is rock. In the third period the gate was approached by the road at *k*; in the second period by the steps *h*—*h*; and in the first by the steps *i*—*i*.

Immediately inside the gate may be seen a wall marked "inner wall" on the plan. We followed this with the idea that the gateway might be double, having an inner as well as an outer door at right angles to each other in the manner of modern Jerusalem; but at a distance of 20 feet from the angle the wall is completely destroyed, and every effort to pick it up again was futile. A pavement was traced for a few feet by the side of this wall, where it was ruined. It doubtless represents the street under which ran the drain to be described in the next chapter. The masonry of this wall resembles that of the third period jamb, into which it is bonded. Four courses are standing, ranging in height from 18 to 25 inches, while the stones vary in length from 13½ inches to 3 feet 10 inches. A few margin and boss stones are seen, but in general the faces are smooth, the chisel-pick being the tool used. The wall is pointed with lime, the

vertical and horizontal joints being irregular and wide.

The course of the main wall immediately to the right of the gate is somewhat uncertain owing to the great destruction. At D^2 a wall-foundation, forming a corner, was found below the level of the lowest sill. This does not appear to have been connected with the tower discovered beyond, as it does not correspond in direction. Its position permits of the supposition that it was the foundation of the right ingoing wall of the first gate period, removed before the second and third periods were built, as the projected line would cut across their sills, whereas it would give sufficient width to the first gate, whose left jamb is farther in than those of the other two. However, we must not make too much of an argument based on the direction of rough foundation work. The tower is plainly an addition to the main wall, which runs back of it at E^2. Accordingly, we have joined E^2 to the foundations at D^2 by a dotted line to indicate the probable course of the wall during the first period.

Tower near Gate.

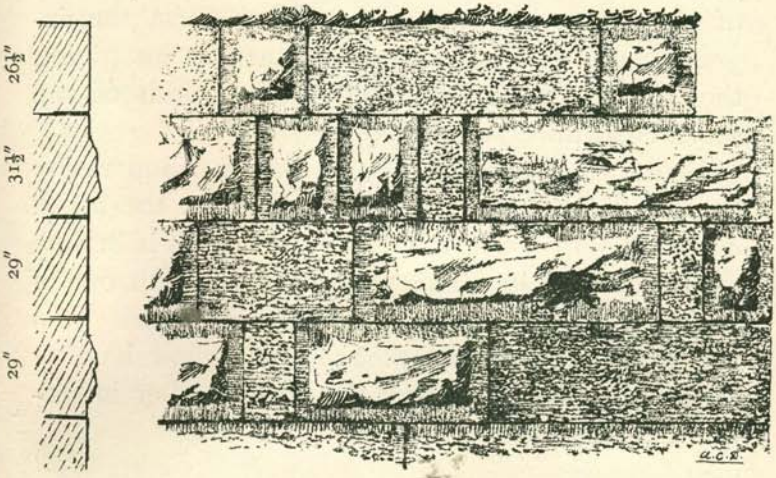
The front and side elevations of the tower are shown on Plate XI. Of the north side very little remains. Mr. Dickie, who excavated a good part of this tower, writes: "Great difficulty was experienced in driving the tunnel from E^2 on account of the huge fallen stones which blocked the way. These stones had become firmly wedged together, and in some cases the workmen had to resort to

quarrying before they could be removed. One of them I measured, and found it to be 6 feet 6 inches long, and 23 inches high, well worked on bed and joints, having drafted margins and rough bosses. The rock here falls rapidly, and is stepped out to form the seats for the stones. The corner being reached, the tunnel was then pushed along the face of the tower, the same superior class of masonry still continuing. On sinking down to the foundation, it was found that for 13 feet from the corner the rock dipped 6 feet, displaying a magnificent piece of wall, at this point ten courses high, measuring over all 13 feet.

"This part is particularly interesting, in so far as it shows two distinct classes of masonry. The dip of the rock is filled in with six courses of finely-jointed stones, from 10 inches to $10\frac{3}{4}$ inches high, the longest stone being 5 feet 8 inches, each course having a back-set of from $\frac{3}{8}$ inch to $\frac{7}{8}$ inch. The dressing is ordinary chisel-pick dressing, with drafted margin in some cases, and the vertical and horizontal joints are worked close and true. Above this, rising from the main base-line of the rock, the stones are of different proportions, and of more varied character. Four courses of this masonry are standing,* varying from $26\frac{1}{2}$ inches to $31\frac{1}{2}$ inches high, the length of the stones varying from 11 inches to 6 feet 5 inches, chisel-picked stones and margined and rough bossed stones being placed indiscriminately. The same accuracy in the jointing and setting is also observed in these upper courses, although the general appear-

* See specimen of masonry at tower near gate.

ance is similar to the other parts of the wall. On examination, it seems quite certain that the shallow courses have been inserted into the dip of the rock after the tower was built; and as the rock rises rapidly towards the inside of the wall, this part would form a sort of facing to the rock; the reduced height of the courses may also be accounted for in this way.



Section.

SPECIMEN AT TOWER NEAR GATE.

"Beyond this, along the face of the tower, the rock again rises. The wall continues for 15 feet to a point where a drain breaks through. Here it was lost sight of, but was again picked up in the same line within 10 feet of the corner, where a sudden drop occurs.* Here ten courses of the wall are still standing to a height of 13 feet, the upper two courses being similar to the upper courses of

* See cut, p. 356.

the last-described part. Below this, the stones are of a very rough character, being unhewn and very roughly squared, and of massive proportions. Turning the corner and following on, we find the same characteristics until the wall abuts against a scarp 12 feet high and is again lost. The irregular turns of this scarp were followed till we struck the walling at D^2. The tower wall probably crossed the line of the scarp, and was cut back to form the ingoing angle of the gate-opening at a point giving the desired proportions to suit the width of the second and third period gates."

Before leaving the tower, we should call attention to the slight wall running south from the south corner, plainly older than the tower, as it is broken off close on to it. This wall is in line with one of precisely similar construction running north from the Roman baths (see p. 228), and their identity seems to be clear. Hence we have another indication that the tower is comparatively late.

Wall crossing Valley.

This tower is at the south-east angle of the city, beyond which the wall bending to the north-east crosses the mouth of the Tyropœon Valley, below the Pool of Siloam, and then turns up Ophel.* This wall was subject to various alterations and reparations, and as the excavation was very complicated,

* For convenience' sake we follow the modern habit of applying the term Ophel to the whole of the eastern hill south of the Haram, though, strictly speaking, it should be confined to the part immediately south of the Temple.

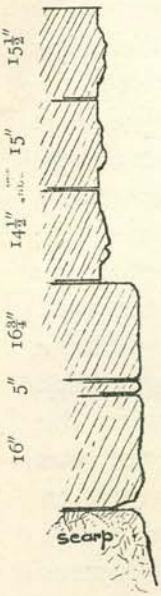
it will be better to give our results first. Beyond the point G^2 we have proved two distinct periods. During the first period (indicated on General Plan II. by the solid colouring) the wall ran straight on from G^2 in the line $F^2\ G^2\ N^2$, with a thickness of 8 or 9 feet. From this wall advanced six buttresses resting on a base-wall about 20 feet thick projecting in a line with their faces, with a larger corner buttress or tower L^2—M^2.* The later period is represented by the hatched portions, and may be explained as follows: When the first wall fell into ruins, the base-wall between the buttresses and a good part of the buttresses themselves remained standing; hence in repairing the wall advantage was taken of these solid remains. The wall spaces between the buttresses were filled in flush with the faces of the buttresses, thus completing an unbroken face of wall, and this new line, which at the point I^2 would have been 12 feet out from the old line, was carried back with a gradually-diminishing distance between the two lines till they met at G^2. A third period was indicated by a rough retaining wall (not figured on the plan, but shown in the sections, Plate XII.), which was rendered necessary by the dangerous bulging forward of the wall owing to the pressure of water in the pool.

The facts from which we have deduced this view will now appear in the detailed account of the excavating of this wall from the tower at E^2 to the point where it turns up Ophel.

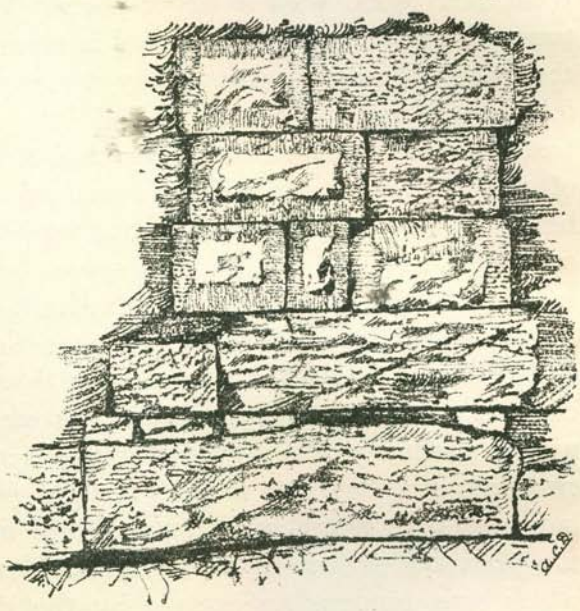
* See "Restoration of ancient wall crossing the Tyropœon" —frontispiece.

Details of Work.

From E² this was traced on the rock for 35 feet 6 inches to the north-east. The masonry of this part is of an inferior character, but this is not significant, as only two courses remain, containing, however, a few stones with the margins and bosses characteristic of the wall before. At F² it was picked



Section.



SPECIMEN AT F².

up again; here five courses of masonry are standing; their similarity to that of the rest of the wall may be seen by comparing specimen at F² with those at Y, Z, and C² (pp. 39, 84, and 86). At G², three similar courses are *in situ*, the thickness of the wall being 9 feet. Between F² and G² only rude foundation-rubble

remains. Finding the face ruined immediately beyond G^2, we cut a trench across the projection of the line F^2—G^2, and found the *inside* face of the wall at W^2. This we traced for some 20 feet, noticing a curious curve to the north-west, which was explained later. The wall here was unexpectedly thick, no outside face being found in a line with F^2—G^2. Accordingly, we pushed across the packing of small stones forming the breadth of the wall, and discovered a small open cistern, measuring 21 feet 9 inches by 14 feet, with walls 3 feet thick, covered with cement, which also extends over the flooring. At the south-west corner it is stepped down to the floor by three steps. Breaking back through the cistern wall at H^2, we found that it had been built up against the city wall, of which two courses of roughly squared stones were seen on the rock, which is here only 4 feet 6 inches under the road. This gives the outside face of the wall in the line F^2 G^2 H^2. The greatly increased thickness, puzzling at first, was explained when a careful plotting revealed the two periods of the wall, the second line diverging from the first at G^2. For as W^2 represents the true inner face of the earlier wall, and G^2 H^2 the outer face of the later wall, the thickness at the cistern includes the original thickness, plus the later addition, due to the divergence of the outer face.

Having recovered the line of the city wall at H^2, we were anxious to push straight on, but this could not have been done without tearing up the road, and an ascending terrace wall on one side, with a

descending one on the other, prevented a diversion of the constant traffic along the narrow road to and from Bîr Eyub. Indeed, the road caved in just outside the terrace at H^2, and we were obliged to fill up our tunnel in a hurry.

Signs of Buttress System.

Accordingly we made a shaft in the terrace below the road at I^2,* finding the wall at a depth of 2 feet. The line was plain, but it was difficult to clear the rough face to any depth, as there lay against it a rough packing of stones, cemented together by a conglomerate, which analysis proved to be pure carbonate of lime, the result of the action of water on the loosely packed stones, full of tiny potsherds; hence the work was stopped. In the meantime shafts had been dug outside the points J^2 and K^2. Outside the point J^2 great stones were found, evidently on their beds, but with no good face, naturally cemented as in the former shaft. At first we thought they might indicate the base of a tower, but search for this was vain, and quarrying back through them we found the true wall again at J^2. In the face occurred a curious vertical joint, the stones to its left being only roughly squared, while the courses to the right showed drafted masonry. This was a clue worth following, so we began the tedious work of quarrying down through the massive outside packing of stones, the use of which was gradually explained as we descended along the real wall-face. For, as seen in the cross-

* Plate XII.

section at J^2, the wall bulges out formidably, and this packing represents an outside retaining wall. At a depth of 18 feet 2 inches from the top of the wall the straight joint ceased, and with it the drafted stones observed on its right, as well as the outside packing. Hence the work grew somewhat easier, and at a depth of 9 feet 3 inches the rock was reached, giving the total height of wall at 27 feet 5 inches. Below the straight joint the face of the wall has a distinct batter.

It was now clear that the drafted masonry represented the face of some tower or buttress projecting from the original line, and the rough masonry, down to the point where the vertical joint ceased, some filling in or alteration of the line. Hence at this point we broke through the rough masonry, pushing along the ingoing side of the buttress. The line continued for a few feet, and then was lost; so we tried the same expedient at a higher level, but the ingoing side was broken away just short of the internal angle, which was probably 12 feet back.

Only the corner-stones at J^2 of the buttress side were drafted, but the face of this buttress, as far as observed, consisted mainly of drafted stones. The courses vary from 13 inches to 22½ inches in height. The dressing resembles that of the wall near gate, only the bosses do not project much, nor has the comb pick been used.* It is impossible to tell the character of the setting, as the courses at the joints are wrenched apart by pressure, but no lime was observed. A singular longitudinal cavity between

* See sketch, p. 105.

two courses suggests that a beam of wood, now rotted away, had once been used for bonding. This method is still used in Syria, and I have observed it in an early church near Nebk.

In our shaft outside the point K^2 we had similar experiences. At first we found ourselves among the outside packing stones, only here we were glad to see they had a distinct face. Pushing back to the true face at K^2, we observed the same difference between drafted and rough masonry, only here, instead of a vertical joint, we found the drafted work projecting 15 inches from the rougher line, confirming our idea that in the last shaft we had also found a buttress. Again we had the tedious job of quarrying to reach the rock. At a depth of 23 feet below the top of the wall the drafted work ceased (the level being the same as at the point where it had ceased in the shaft J^2), the outside packing disappearing also. This buttress, as the former, rested on a base-wall projecting in a line with its face. The rock was at last reached 21 feet below this point. The rock, which is not cut to a scarp, is 44 feet below the top of the wall, and 46 feet 6 inches below the terrace surface. This is probably the deepest part of the valley.

Two stones of this circular buttress are pierced by circular holes 8 inches in diameter, one of them having a stone stopper fitting into it, broken off flush with the face, but the fracture showed that it had once projected. This would have produced the same effect as the button projections from the Haram Area wall at the south-east angle.

We broke through the rough filling as before to look for the internal angle of the buttress. The ingoing face was much ruined, but indications of the angle were found 12 feet back. Assuming the internal angle of the buttress at J^2 to be the same distance back, we find that these two points are almost exactly in line with F^2 and G^2, and indicate that the original wall ran on straight from G^2. Unfortunately, owing to the extreme difficulty of quarrying through the outside packing (an advance of 3 feet sometimes representing a day's work for a gang), the length of the buttress faces was not ascertained, but we assume this to have been about 15 feet. The buttress at I^2 was not actually proved, but the bossed stones of the older system occur, and the measurements allow for another buttress at this point. No lime was used either in the original or in the repaired wall.

Shaft on Other Side of Valley.

The buttress system having been proved, we transferred operations to the other side of the valley, and sank a shaft at L^2 in hopes of finding the corner tower or buttress. Rock was struck at a depth of 36 feet, and upon it rested the wall desired. A glance at elevation L^2—M^2* will show that in the shaft nine courses of stones were observed. For seven courses from the rock the wall consists of rough rubble set without lime, and having a distinct batter. These run on beyond L^2 to the left. The

* Plate XIII.

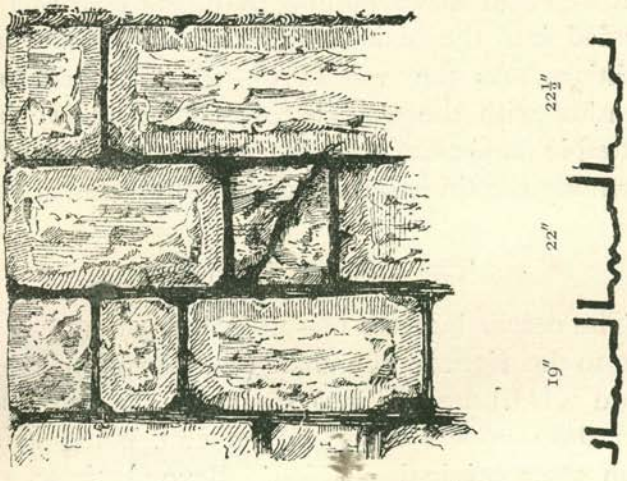
eighth and ninth courses are of well-dressed, well-set stones, also without lime. The top course, being here ruined, does not run on to L^2; but the eighth course does thus run on, forming a return angle at L^2, the corner-stone being bossed on two sides. Beyond this stone the course is carried on in rude rubble, resting on the battered seven courses below. (For the sake of avoiding confusion this is not represented on the elevation.)

Buttress System confirmed.

Here, then, we find the same state of things as occurred in this same wall across the valley. The double-bossed stone at L^2 represents the return angle of a buttress, similar to the buttresses at I^2 J^2 and K^2. The seven lower courses are part of the base-wall found before to project in a line with the buttress-faces. The rough work beyond the double-bossed stone represents the reparation, when the spaces between the buttresses were filled in by carrying up the base-wall to the top, thus completing an unbroken line across the valley. At L^2 we tunnelled at right angles with the line of wall to ascertain its thickness. As the rock rises rapidly, the work here was somewhat difficult. The total breadth was found to be 19 feet. As in the cases of the other buttresses, the internal angles were not clear (which is not strange, in view of the fact that the original wall was damaged and repaired); but assuming the original wall to have had the usual thickness of 8 feet, there remain 11 feet for the projection of this buttress. This is about the same projection as

the remains of the other buttresses indicated. When the pressure of the water in the Old Pool demanded a strengthening of the wall by the filling in of the spaces between the buttresses, the total thickness of the dam at this point came to be 19 feet.

The identity of the wall described at this corner with that excavated across the valley is further proved by a detailed examination. In both cases



SPECIMEN AT K[2].

the base-wall has a batter. The masonry of the buttresses is also the same, a mixture of drafted and plain-faced stones. The bosses project from 1½ to 6 inches, the margins are worked by chisel-draft, but in a very few cases on the stones of the last-discovered buttress the comb-pick has been used. In both cases the absence of lime was noted. In the case of other buttresses it was impossible to tell the character of the setting, as the joints were

wrenched apart by pressure, causing the whole face to bulge forward.* The corner buttress L^2—M^2 preserves a perpendicular face, and a fine jointing is observed in the setting of the stones. As the wall here does not bulge forward, there was no need of carrying the rough outer retaining wall to this point. At any rate, no such wall was found here. However, in front of L^2—M^2 there was masonry so ruined that we could make nothing of it, but as it was not bonded into the main wall, it is clearly some later addition. As the wall at L^2—M^2 is proved to be identical with the wall discovered before, we have dotted in on General Plan II. the part not excavated, assuming the three intermediate buttresses.

The Corner Buttress.

The corner buttress L^2—M^2 is interesting. A few feet to the right of the shaft (see elevation L^2—M^2, Plate XIII.) the last two stones of the top course and drop appear to be set on end, being shifted from their original position. Beyond these, only roughly-squared, quarry-picked stones carry on the line to the corner M^2, where bossed stones would be expected if anywhere. Turning the corner, we tunnelled along the line M^2 at an obtuse angle with M^2—L^2 (see key plan) to the point *j*, where a projection of 18 inches occurs. To the left of the projection (see elevation M^2 *m*) the two top courses are of well-squared picked stones. Work had here become exceedingly slow, owing to a mass of con-

* See specimen at K^2.

solidated stuff glued against the wall, a sort of natural cement more difficult to break up than the solid rock. Accordingly we decided to approach the wall at a point higher up. In the new shaft were observed four courses of bossed stones, similar in height and dressing to the bossed stones at L^2. At *j* these were seen to project 18 inches from the continuing line of wall, immediately above the similar projection in the rough masonry, as seen in the tunnel below, but the bossed courses are broken off irregularly, showing they had once run on. The similarity of the bossed work at L^2 and *j* shows that these represent the original work. In other words, the south-east corner of the original buttress had been ruined and repaired, the reparation having altered the shape of the corner, which probably first followed the dotted lines formed by a projection of L^2—M^2 and *k*—*j*. The stones of the reparation in the upper tunnel are smaller than the original bossed stones, and are plain-faced, picked, and well squared, similar to the two top courses below.

The bossed work continues to the right of the shaft for a few feet, when it ceases, the wall running on in the same line, but in rough rubble, to *k*, where another projection occurs, this time of 22 inches. Built upon this projecting line of rubble, we find a class of masonry quite different from anything seen before in this excavation, but similar in dressing (though not in size) to the stones of the upper wall on the western hill. Five courses were seen in a shaft opened here. The stones are small, varying

in height from 9½ to 11¼ inches. They are set in lime, with fairly uniform joints. As to dressing, they are plain-faced and comb-picked, a few having chisel-picked centres, but no projections—a favourite method of dressing in modern Jerusalem architecture. The courses have back-sets, varying from 1¼ to 2½ inches. Owing to the rude nature of the rubble-foundation and to this back-setting, the upper masonry falls generally into line with *j*—*k*, thus counterbalancing the lower projection. At *l* there occurs another projection of 2 feet in the rubble, which runs on to *m* in an even ruder condition than observed before. It is here set in cement. On this rubble (as may be seen at the shaft to the extreme right) were found two or three large stones, similar to the masonry of the upper wall on the western hill. At *m* the line *l*—*m* butts up against the wall *n*—*p*, which runs back of it for about 2 feet towards *n*, where *n*—*p* is ruined. At *n*—*p** we seem to have returned to the original line, the angle once having been where a projection of *j*—*k* would meet *n*—*p*. In height the courses are identical with the original work at *j* and L^2, but they are less evenly set. In the top bed of the upper course lime was observed on a single stone, but no signs of lime were found below. The stones are mainly plain-faced (as are some along the line L^2—M^2) and roughly picked, two having slightly projecting centres. As the few courses remaining at *n*—*p* are built up against the rock, it would have been impossible to recover its thickness had it not been for the conduit,

* See elevation *n*—*p*, Plate XIII.

9 feet high, which breaks through the rock at right angles. *n*—*p* is here built solidly back into this conduit, showing an inner face ; hence the thickness could be measured, and was found to be 8 feet.

Near *p* the wall butts against the rock, but in the same line, just beyond, the top of the exposed natural rock is cut out in the form of beds for stones, which show how the face of the wall ran on. Five such beds may be seen on elevation *n*—*p*. This is a most important point, as it proves that the wall was carried fairly up the eastern hill.

Similar beds occur along the top of the *scarped* rock, so far back from the face of the wall at *n* to permit of our supposing that they served for the stones of the inner face of the wall. Another supposition will be mentioned later. At *t* the stones of the wall *n*—*p* are cut diagonally to let in a small buttress, the purpose of which is mysterious.

Later Towers.

We have now to consider the wall *t*—*r* (see key plan). This advances at about right angles from the wall *n*—*p*, which, however, runs *back* of *t*—*r*, sure proof that the latter is an addition. The face of *t*—*r* consists of masonry similar to that found at *k*, but the height of the courses is greater, averaging 13 inches instead of 10½ inches. The stones are well set in lime, having picked centres and comb-picked margins, but no projections. Towards *t* the dressing becomes finer, and a fine comb-pick dressing mingles with the picked work in the centres. About half-way between *t* and *r* a straight

joint runs through the thickness, not occurring, however, in the facing stones. To the left of this joint the thickness is 8 feet; beyond the joint it is 9 feet. At the point *r* this wall no longer rests on the rock, but on the consolidated stuff mentioned before. At *r* the wall stops, but we have no clear corner. A trench in a line further on failed to reveal any continuation of *t*—*r*. However, the rude wall *r*—*s* was followed for some 35 feet at right angles. Breaking through its face at two places, we found its thickness to be only 3 feet, but it was built up against a face of a *second* wall, which turned out to be 5 feet thick. This second face is of masonry, in general similar to that at *t*—*r*, but not so finely dressed or well set. Beyond *s* much work was done, which was tedious and expensive, owing to complicated landownership. Hence it was a disappointment to find no further traces of *r*—*s*, though the point where it stopped was ascertained only within a few feet, owing to a quarrel between two landowners as to their boundary.

Our theory as to the line *t r s* is as follows: The thickness of the wall *t*—*r* makes it probable that it was part of the city wall, and its position indicates that it may have formed the side of a tower; the absence of a good corner at *r* suggests that this tower may have projected further; the *inner wall* along the line *r s* (5 feet thick) may have been a partition wall within the tower; when the original outer face was ruined, the projection of the tower was decreased and the inner partition was strengthened by the added face, 3 feet thick, thus

forming a new outer face, 8 feet thick, for the curtailed tower. The straight joint within the thickness of *t*—*r* suggests some other sub-period. The probable limits of this tower are indicated by dotted lines on General Plan II.

The question now arises, To what relative period are we to assign this tower? It is certainly later than *n*—*p*, which runs back of it. It is hence later than L² M² *m*, of which *n*—*p* is a continuation. But it seems also probable that it represents a tower built after L² M² *m* was abandoned, as one tower appears to exclude the other, the long narrow passage between M²—*m* and *t*—*r* being an arrangement difficult to explain, as the perpendicular rock at the end of it shuts out the theory of a gate.

Assuming, then, that this outer dam was abandoned, we may suggest that the inner dam, now existing (marked "Present Wall of Old Pool" on key plan), built at a later period, was used for the line of the city wall, which then ran along the stepped-up scarp at *m* (see elevation *n*—*p*), and perhaps further on made use of the old line at *p*; *t r s* may then be considered as a tower projecting from this new line of city wall. I am obliged to mention that this assumption necessitates the corollary that the masonry at the point of reparation *k* is older than the line *t*—*r*, which is so similar to it. However, it is quite possible that the likeness is due to a re-using of the old stones, fallen so close at hand. It is a pity that the much-used road interfered with our determining the limits of the masonry at *k*, which does not continue to the shaft to the left.

A last period remains to be described. This is the wall *t*—*u*, behind which *n*—*p* also runs. It is built on the ruined remains of the wall *t*—*r*, and is also 8 feet thick. It consists of large rough rubble. The corner occurs at *u*, beyond which it was traced at right angles for a few feet. Long and unsuccessful search was made for it further on. We assume it to be a small tower projecting from the later line of wall when the tower *t r s* was destroyed.

In tracing the wall from the gate across the valley, and on up to Ophel, we found our work much complicated by the various reparations and rebuildings described above. After a careful study of these on the ground, Mr. Dickie and myself were forced to admit five distinct periods, some of which showed signs of sub-periods. At the risk of some repetition, we may recapitulate these in order.

Recapitulation.

1. The wall with advancing buttresses, built without lime. This wall is in general 8 feet thick, but rests on a base-wall, projecting in a line with the buttress-faces, which project 12 feet from the upper wall, giving 20 feet as the thickness of the base-wall. A large corner buttress occurs at L^2—M^2, the line running back north-west to the point *n*, and then turning up the hill in a north-easterly direction. Between the corner M^2 and the point *n*, this first wall had been much damaged, but the original masonry is *in situ* at *j*. This system is represented on the key plan (Plate XIII.) in solid black. The masonry is similar to that of the wall entering the

Jewish Cemetery, emerging from the same, and forming the ingoing angle of the gate which was contemporaneous with the first door-sill, though used during the three periods.

2. The second period consists of a strengthening of the first by filling up the spaces between the buttresses with masonry carried up from the base-wall, thus giving about 20 feet as the thickness of the dam along its entire length. The ruined corner buttress was repaired, but its angle was altered. The character of the masonry of this first reparation may be seen in the work at the left of "projection *j*." No lime is used.

3. The masonry at *k*, so different from any observed elsewhere on the line, demands our recognition of a distinct reparation at this point. Not only are the stones smaller, but the dressing is peculiar, and the stones are set in lime. This last period may be contemporaneous with the second period of the gateway.

The great strengthening of the wall across the valley was not sufficient to stand the pressure of water from the Old Pool, for its bulging forward necessitated the building of the rough retaining wall seen in the cross-sections at J^2 and K^2, Plate XII.

4. Thus far our recapitulation has been concerned with reparations on one line of wall. It has been shown before, however, that the tower *t r s* probably projected from an altered line of wall, *i.e.*, from a continuation of the present wall of the Old Pool, when the lower dam wall had been abandoned. Indications of sub-periods in the tower

t r s have been shown to exist. This new line may have been contemporaneous with the third period of the gate.

5. The line *t*—*u* has been taken to represent a tower projecting from the supposed altered line of wall, built upon the ruins of the tower *t r s*. This brings up the number of periods to five.

We have presented to the reader the facts from which we have deduced these five periods, and our reasons for deducing them. He may not entirely agree with us in either the number or in the order of the periods deduced. The important point is that these various reconstructions actually exist. Anyone glancing at the elevations without reading a word of my explanation will admit this. A wall may present one of two kinds of patchwork. It may have been built at one time out of various kinds of old material, which will then be jumbled together. Or the patchwork may result from reparations, effected at different times, in which case we would find blocks of homogeneous material, set in a distinct manner, extending for some considerable length. Such is the patchwork we are now considering. Whatever may be the exact relation of these various reconstructions, they declare one fact: at many periods in the history of Jerusalem the city wall crossed the Tyropœon below the Old Pool; the continuation of the line up the rock of the eastern hill Ophel proves that we are dealing with no mere dam wall.

Extent of Old Pool.

Interesting light has been thrown upon the original extent of the Old Pool, which once reached to the buttress L^2—M^2. We have shown elsewhere how the roughly-built retaining wall was permeated by a natural cement formed of carbonate of lime, produced by the action of water on the stones, doubtless through leakage or overflow from the pool. This exceedingly hard "stuff" was found also all around the buttress L^2—M^2; none of it remains at *k*, but it occurs beyond. It extends as far as *r*, the later wall *t*—*r* at that point being built upon it.

Rock-hewn Conduit.

Reference has been made to the conduit closed by the wall *n*—*p*, which was built back into it. On the key plan a branch may be seen to enter it from the right. This branch seems to be the main line of Schick's "Second Aqueduct" from the Virgin's Fountain to the Pool of Siloam (compare plan facing p. 13, *Quarterly Statement* for 1891). These conduits are hewn in the solid rock. The branch conduit is at least 7 feet high, its floor being 5 feet 9 inches higher than that of the other, the drop being almost perpendicular. At the point of junction the main conduit is over 13 feet high, but its roof drops 5 feet at the point where the back of the wall *n*—*p* is let in. The wall *n*—*p* is clearly later than this part of the conduit. But we cannot tell whether it be later or earlier than the branch aqueduct conduit

which, as I have said, represents part of Schick's "Second Aqueduct."

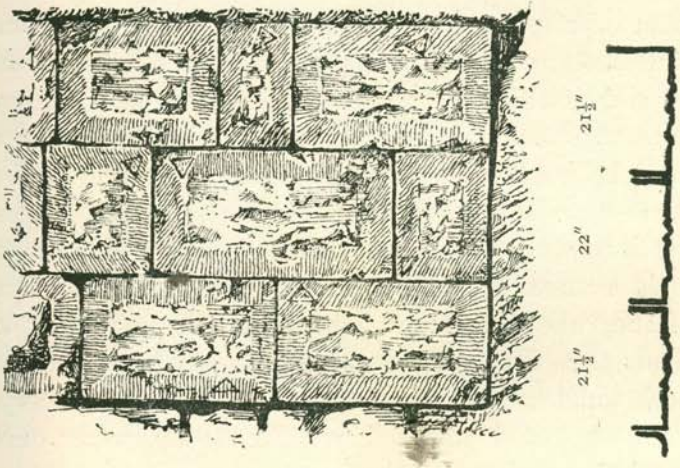
Wall to West of Pool.

Before speaking of the probable connection of our wall with the one discovered by Sir Charles Warren running south and south-west from the corner of the Haram Area, we should notice the wall running north from the wall just described at N^2, on the west side of the Tyropœon. This had been noticed by Dr. Schick at the point S^2, and excavated by Dr. Guthe from S^2 to R^2. The latter also saw it for a length of 6 feet at O^2, where he believed it to be part of a city wall, which after turning at right angles should cross the valley in the line of the present dam wall; the piece S^2—R^2 he took for an independent wall. As the ground did not seem to have been thoroughly exhausted, I sank a shaft at Q^2 with the intention of pushing a tunnel back towards the drain.

At a depth of 26 feet we struck the cement floor of the open cistern found by Dr. Guthe, and described by him on pp. 136-141, Band V., Heft 2, "Zeitschrift des Deutschen Palæstina-Vereins." It is a large pool, and I take the liberty of adding it to my plan, though we saw it only at the corner. As it seemed inadvisable in our lower gallery to break through the cistern wall, we drove another over the top of it,* getting its breadth at 6 feet 6 inches, where our progress was hindered by large

* See Plate XIV.

stones. We then took advantage of another shaft, already dug to reach the drain, and made the connection with the gallery from the shaft at Q^2, finding a scarp at P^2, the bottom of which we did not reach. However, a glance at "section through P^2 and Q^2" will show that if it did not drop at once to the level of the rock under the concrete floor of the cistern, the slope of the rock must have been very rapid.



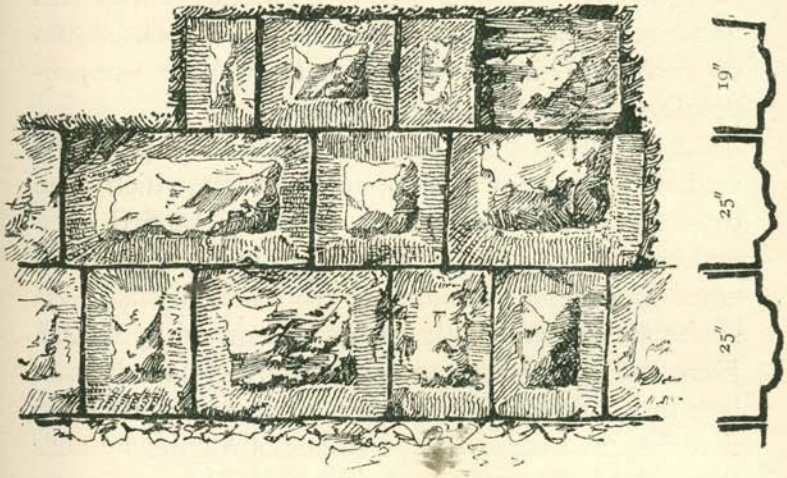
SPECIMEN AT O^2.

We followed the scarp in the direction of N^2, finding in places rough foundation-stones resting on it, to a point 32 feet from N^2, where one course of dressed stones began to be observed. Thirteen feet beyond, the scarp steps down vertically for 7 feet, and three courses of masonry, with a foundation of small rough stones, butt against it, forming a straight joint. The "specimen at O^2" shows the character of the wall here. The jointing of the masonry is fine; the

courses are from 21½ inches to 22 inches high; the margins of the stones are regular, from 4 inches to 6 inches, and are chiselled across, the comb-pick not having been used; the centres are rough-picked, only one projecting like a boss. It was at this place that Guthe saw 6 feet of the wall, and our observations agree with his. However, the mason-mark given on his Plate III. is more elaborate than the rude triangles we found carved on the margins of most of the stones. Probably that particular stone had been removed with others by the owners, as we did not find it. As he noticed, the rock below the scarp has been quarried away for building stones. Had he pushed his tunnel a few feet further to the south-east, he would have found the point of connection with the lower wall system. The scarp ends vertically, turning inward, and the inside face of the valley wall, now *in situ*, is built up against it. Thus the two walls butt against each other. As both walls are ruined above the level of the scarp-top, we could not tell whether they were once bonded together above this point.

Returning to P², where we had first struck this scarp, we followed it to the north-west for 9 feet 4 inches, where it breaks outwards for 8 feet 2 inches, and then resumes in general its former direction for 9 feet 7 inches to a point where we again struck Dr. Guthe's work. Here we came upon a rude thin wall, running off from the scarp to a point under the eastern terrace. On his Plan III. this wall is marked C D. From this point the scarp continues for 6 feet 10 inches to R², the face being

plastered with hard, fine lime. At R^2 it steps down vertically, and the masonry again appears butting against it, and forming the straight joint shown on Guthe's plan, which he took to indicate the end of the wall. But this feature we have already pointed out at O^2, and the scarp connecting O^2 and R^2 proves that they are on the same line of wall. From R^2 we followed the wall for 25 feet 10 inches to the



SPECIMEN AT R^2.

point S^2, where it was first seen by Guthe, and marked B on his plan. Under ordinary circumstances I would not reopen an excavation of a brother explorer, but having found that the line of wall continued beyond the point where he supposed it to end, I was anxious to find whether it also continued beyond the other supposed limit. The character of the masonry is shown in "specimen at R^2." The wall has been robbed of stones since

Guthe's work, but our measurements of those that remained showed an exact similarity with the corresponding ones in his elevation. The courses are from 19 inches to 25 inches high. Rude bosses project from 3 inches to 5 inches from the irregular margins, which are chisel-drafted, further dressed by the comb-pick. The jointing is not so fine as at the part of the wall at o^2. A comparison of the two drawn specimens will show the differences better than any description. As the rock slopes up rapidly behind the face of the wall, it was impossible to ascertain the true width.

At R^2 the scarp ceases, and beyond this point the wall rests for a few feet upon the rock, which then dips, the rest of the wall to s^2 being carried on a making-up of rough stones grouted in cement, extending some distance out from face of wall. At s^2 the masonry abruptly ceases, as noticed by Guthe. Here the line crosses an open cistern, whose bottom is 3 feet below. The owners of the land declared that they had removed the stones of a gateway near the point where the wall is lost. This testimony corresponds with that of a former guard of ours, who spoke of this destroyed gateway long before we had ever seen the landowners. We excavated among confused foundations remaining in front of the line of wall here, but without finding any proper clues. The rock was not found. Pushing our tunnel for 8 feet 5 inches in the same line beyond s^2, we were fortunate enough to find a stone of precisely the same character, *in situ*, on a similar foundation, proving that the wall had continued to

this point, though it was again lost up to a point 7 feet beyond, where, having reached the limit of the property, we temporarily suspended the work, as our attention was called elsewhere.

As this wall was pointing in the direction of a scarp exposed at the west of the Old Pool, it seemed advisable, later on, to determine whether the two were connected. Accordingly, we began a tunnel at the south end of this exposed scarp, at the point T^2, and drove it back under the road, to within a few feet of the point S^2, a distance of 118 feet. For 42 feet the scarp continues, but is only 18 inches high for a distance of 34 feet; it then rises to a height of 7 feet, and, continuing for 8 feet more, comes abruptly to an end. The top is not level, and the bottom course of the rubble wall, which was traced upon it for the whole distance of 42 feet, is pinned up with chips. From the point where the scarp ceases, the wall was traced on the natural rock for 25 feet 6 inches, the direction having slightly altered. In this section the face was seen for some distance consisting of rude rubble and chips, with a rough idea of coursing observed. The character of this face not being sufficient to prove it to be a city wall, we broke through it at one point, and were pleased to find the thickness 10 feet, with the rock rising behind. This job of breaking through the wall was exceedingly difficult, as the mortar used in the inside had rendered it very strong. In the rest of the tunnel, a distance of 50 feet 6 inches, the rock was not seen, the wall resting on a concrete bottom, similar to the making-up under the part of the wall

at S^2, the latter, however, being somewhat stronger. As the face of the wall had been robbed, except for one single course, *in situ*, for 5 feet, it was impossible to get the precise line, but the general direction could be traced for the whole distance, at the end of which it almost died away. In front of the inferred face there were found confused remains of building similar to those seen in front of S^2, where the Fellahîn had declared that a gate had been destroyed. The lack of face at the end of our tunnel, then, may indicate that a tower and gateway once existed here. I have said that the wall in the line N^2—S^2 was entirely ruined at S^2, only a single stone having been seen beyond. We have thus only a hiatus of 15 to 20 feet between the two pieces of wall, each of which, at its point of ruin, is resting on a cement bottom, and is pointing towards the other; hence we may affirm their identity.

In our work between T^2 and S^2 we did not find any of the finely-dressed and squared stones which occurred at O^2 and R^2, but it should be noticed that for a long distance we saw no face at all, and that at the points where we did see the face the rough masonry may have been originally underground, and the masonry above, now ruined, may have been originally of a finer type. Similar rough foundation masonry also occurs under the dressed work in the line N^2—S^2, as may be seen on Plate XIV.

The Scarp.

I now return to the point T^2 where the scarp is exposed on the west side of the Old Pool in order

to describe its course towards the north-west. For 115 feet little work was needed, as at some points we had only to scrape along the exposed rock to prove that it really was scarped. Along this section there is no wall directly on the top of the scarp, and a tunnel driven in at right angles for several feet at one point failed to reveal any wall set back from the scarp. At the point where the rock ran underground again a shaft was sunk, and the scarp was found to be 17 feet high, quite perpendicular and finely worked. We drove a tunnel north-west for 65 feet, not at the base of the scarp, but along its top, without, however, finding any wall. Running almost the whole length of this tunnel was observed a small channel of concrete, 9 inches square, interrupted by a cistern 3 feet in diameter, into which a second similar channel flowed. We also broke through the walls of a chamber built against the scarp 15 feet broad, and paved with white tesseræ.

Fifteen feet beyond the end of this tunnel we sank another shaft at U^2 and picked up the scarp again. Here we drove a tunnel west from its top, and at a distance of 8 feet we found a fragment of wall 8 feet thick. Only 11 feet of its length remain. Two courses of dressed stones appear, which vary in height from 16 to 20 inches. The stones have chisel-drafted margins, with centres projecting from $\frac{1}{2}$ to $\frac{3}{4}$ inch, chisel-picked. They are well squared and set, no lime being used on the face, though it was observed in the inside of the wall. It resembles the masonry at O^2, and appears to be a continuation of the wall seen there.

From U^2 we followed the scarp in precisely the same direction as before (north-west by north) for 91 feet. At U^2 it is 14 feet high; the top continues fairly level, but the base ascends gradually, so that the scarp disappears a few feet south of V^2. At first we kept along the top of the scarp, but soon we were obliged to tunnel under the hard concrete bottom of a channel resting against it. A few feet before the scarp ends its top was seen again (the channel having altered its course), and a much-ruined wall was observed on it. It appears to be of slight thickness, though the rapidly-rising rock to the west makes the question of its original breadth uncertain. It is clear, however, that it has nothing to do with the great blockage which forms a distinct corner at V^2, with a side facing the west. Against this face earth is piled, showing that whatever the other bit of wall may have been, it is quite gone north of V^2. As it appeared so unsatisfactory, we drove a tunnel west for 20 feet from V^2 to catch the desired wall in case it had diverged from the scarp line but nothing was found.

The line followed between N^2 and V^2 is continuous. This line consists of wall on scarp, wall without scarp, and scarp without wall. We have seen points where the wall on the scarp ceases and the scarp runs on; we have seen points where the scarp under the wall ceases and the wall runs on. That this continuous line, N^2—V^2, represents a city wall may be argued from its thickness, ascertained at two points to be from 8 to 10 feet. The question as to whether it is an inner or an outer wall may be

now discussed, as we consider its relation to the wall crossing the valley. This latter we have proved to run on different lines, at two different periods, the earlier running straight on from G^2 in the line F^2 G^2 N^2, with projecting buttresses, and the latter diverging at G^2, so as to run in line with the buttress faces. The discussion thus concerns itself with three lines, to which we shall refer as the original wall, the repaired wall, and the wall N^2 V^2.

Relation between Wall West of Pool and Wall crossing Valley.

The actual inside face of the repaired wall butts against N^2 V^2 at N^2, but the inside face of the original wall (traced at W^2, and ascertained by pushing in from L^2) must have cut the line now taken by N^2 V^2 several feet north of N^2; hence the line N^2 V^2 must have been laid out when the inner face of the original wall was ruined just beyond N^2, as N^2 V^2 clearly runs to that point, forming a corner or right angle to the line F^2 G^2 N^2. Hence it is possible that the original wall, which included the pool, fell into ruins, and was rebuilt from the gate only as far as N^2, the part beyond with buttresses being abandoned in ruins, or more probably left merely as a dam wall; while the wall N^2 V^2 was built running north, forming a new line F^2 N^2 V^2, excluding the pool, with a corner at N^2. Unfortunately, at this critical point the masonry is entirely gone, but this view is favoured by the fact that beyond the point W^2 the inner face of the wall was

found to curve as if to give additional strength at a true corner. When it was again desired to include the pool within the city, advantage was taken of the remains of the original wall crossing the valley, and the repaired wall was built. Thus we would have two periods when the pool was enclosed, separated by an intermediate period when it was outside the city. As the wall was repaired many times, this theory is equally tenable if we regard the especial reparation of filling up the spaces between the buttresses as having been effected before the wall n^2 v^2 was built, or contemporaneously with that wall, a supposition permitted by the remains. It is, however, possible that the wall n^2 v^2 was never more than an inner wall, forming an extra defence for the pool, which was still included in the city by the repaired wall.

Scarp found by Guthe.

We have shown how the main wall, after crossing the mouth of the Tyropœon, mounts the south end of Ophel, and runs out on to a stepped-up, exposed scarp. A glance at the plan will show that beyond this point the wall could have had but one course, *i.e.*, along the east slope of Ophel to the south-east corner of the Haram. This inferred course we have indicated by a dotted line as far as x^2, where Dr. Guthe discovered a scarp and wall which appear to belong to the line. The other detached bits of walling that he found, varying much in thickness, do not seem to belong to the city wall. We were

enabled to verify his work at x^2,* as the proprietors, who were digging out a lot of old stones, were glad to have us make an examination. Here we observed a piece of wall, apparently set on a scarp, which extended for some 40 feet; but on clearing away the earth in front of it we found that only the top of the cliff was scarped, and that natural caverns, enlarged and squared by art, extended back into it, their flooring being some 15 feet below the scarp-top. This top was irregular, and the few stones of the one course resting on it varied in height from 8 to 20 inches. In dressing, they resembled the work in the "specimen at o^2" (p. 117). They had rough bosses projecting 2 or 3 inches, and irregular margins, dressed with the comb-pick. They were set in line, with wide joint. There was only one course, and the thickness could not be ascertained, as the rock sloped up behind. The position, however, is a favourable one for a city wall, right at the top of the very steep eastern slope. Outside the line of wall we found several rock-cut steps connected with a very ruined building, which seemed to be a small bath, situated, strangely enough, on the hillside. In describing this scarp and wall, we have used the past tense, for since our examination they have been blasted away.

Warren's Ophel Wall.

From the point x^2 we have drawn a dotted line to Warren's Ophel wall, which is described in the "Recovery of Jerusalem," pp. 295-302, and in the

* See his Plate IV.

Jerusalem volume of the "Memoirs," pp. 226-231.* This wall abuts on the Haram Area wall at its south-east angle, and as it has rubble-foundations resting on the clay, while the Haram wall shows well-dressed masonry down to the rock, Sir Charles Warren argues that the latter is the older. Colonel Conder, however, calls attention to the fact that these walls have the same bearing at their junction, and says: "It might be thought that the obtuse angle at the south-east corner of the Sanctuary (Haram) resulted from the building of the east wall of the Sanctuary in a line with the already-existent Ophel wall."

At the junction the Ophel wall stands 50 feet high, or 74 feet above the rock. The first 20 feet consist of rough rubble, from which rises a wall of well-cut, smooth-faced, undrafted masonry for 30 feet more. This rests on a plinth course of a 6 inch projection. The courses average 21 inches high, and the stones 3 feet in length. The top course, however, consists of drafted stones, 3 feet 9 inches high. After running south for 90 feet to a point where a small tower occurs, the wall extends south-west for 700 feet, where it abruptly stops. Three other small towers project from the line.

Comparison with our Masonry.

A comparison of this wall with the upper line, which we traced from the fosse near the Protestant Cemetery to within a few yards of the Jewish

* See also Plates V. and XI. accompanying the Jerusalem volume.

Cemetery, shows a striking resemblance between the two. In both cases we observe the rubble-foundation, at some points not set on the rock; the bottom plinth course; the smooth-faced masonry; and, finally, the small projecting towers. The proportions of the stones average just the same in both cases—length 3 feet, height 21 inches. An exception should be made in the case of the larger drafted course found at the top of the Ophel wall; but this is the twenty-first course above the plinth, and in no place were more than six courses of our wall standing. As to the towers, in the Ophel wall these project from 6 to 8 feet, with faces averaging 25 feet; in our wall their average projection is 11 feet, and their average length 29½ feet. The spacing is not dissimilar. On the Ophel wall Tower II. is 310 feet from Tower I., but a break in the line (shown on Plate V., Jerusalem vol.) suggests that there may have been an intermediate tower. Between Towers II., III., and IV. the distances are 115 and 150 feet respectively. The distance between the towers from I. to IV. on our line averages 120 feet, while Tower V. is only 80 feet from Tower IV.

Beyond the point where it was lost, the course of our wall is doubtful; but whether it ran down to Siloam or not, there are many lines by which it could have been connected with Warren's upper Ophel wall. His *upper* wall, I say; for as our wall was found to run on an older line, which showed signs of three periods, so Tower II. of the Ophel wall cuts across the foundations of an older and larger tower,

projecting 22 feet 6 inches beyond the rubble, and having a face 26 feet long. The stones, which are from 2 to 3 feet in height, have well-dressed margins, and rough-hewn projecting bosses. The character of the dressing seems to correspond with the masonry of our "lower line," though the stones are certainly longer. The south side of this tower abuts on a still larger tower, which projects 41½ feet from the line of rubble, and has a face 80 feet long. Its stones are much smaller than those of the tower just described, varying in length from 2 to 3 feet, and in height from 1 to 2 feet. Conder thinks that the smaller of these two towers forms a corner buttress to the larger, but if this is so, it must have been a later addition, as the masonry differs greatly in size, and as a straight joint occurs between the two.

Whatever may be the relative age of these two towers, and their relation to the rough rubble, they both are certainly older than the wall of smooth-faced masonry running above them. Two hundred feet along the line of wall, south-west of the place where it appears to stop, a scarp 12 to 14 feet high was found by Warren to run south-east, in a line generally pointing to the scarp found by Guthe at x^2. Thus, Warren's line may have once been connected by the scarp at x^2 with the wall which we found mounting the south end of Ophel, and hence with the wall running down to Siloam from the western hill.

A Few Statistics.

Before closing this chapter, we may group together a few statistics about the ancient city wall which we

have traced. From the top of the fosse near the Protestant Cemetery to the rock-bed of the Tyropœon, the distance measured along the line of wall is about 2,375 feet, or somewhat under half a mile. Between these two points the base of the wall drops 440 feet, or about 1 in $5\frac{1}{2}$. The sum of the pieces of wall actually excavated along the line (without regard to difference of period) amounts to 1,050 feet, or about a fifth of a mile. Its course for 100 yards through the Jewish Cemetery is quite clear, as it was seen both at the point of entering and at the point of emerging. Between the fosse and the cemetery 72 per cent. of its supposed length was seen and measured. Between the other end of the cemetery and the bed of the Tyropœon, 30 per cent. was seen. Within this distance a line of exposed cliffs, extending for 100 yards, shows how the wall must have run, but is not included in the 30 per cent. seen. At various points the utter destruction of the wall was proved.

The wall was found at very different depths. The accumulation above the rock-foundation varied from 6 to 46 feet. The accumulation above the ruined top of the wall varied from 2 to 35 feet. Sometimes but one course remained *in situ*, while in one place the wall was found standing to a height of 44 feet.

CHAPTER IV.

THE TYROPŒON VALLEY.

General survey of work—The drain—Two systems—Manholes—The paved street—Results obtained—Details of excavation — Branch street — Longitudinal section — Search for eastern branch—Search for wall—The blockage—The stairway to pool—The ancient Pool of Siloam —Covered arcade—Paved court—Purpose of stairway —Connection with Warren's discoveries—Section C–D— Rock-dwellings and wall—Ruined buildings—Remains in deep shaft—Search for wall crossing valley—Examination of west slope of Ophel—Stone steps.

General Survey of Work.

The discoveries in this valley were of considerable interest, including a paved street, with a fork above the Pool of Siloam, one branch probably leading to the gate at D^2, and another connected by a stairway with the original pool, in regard to which several points were cleared up. A drain was found under the street, and traced for some 1,700 feet. A church was discovered, built over the disused stairway, and extending over the north arcade of the pool. The west slope of Ophel was examined in the hope of finding remains of a wall or of rock-hewn steps,

though the search was unsuccessful. A section was made across the valley, which revealed its original form and resulted in incidental discoveries.

The Drain.

The drain was traced from the point O^3,* some 700 feet south of the south-west angle of the Haram Area to its exit from the city near the gate at D^2. It will be convenient to examine this in sections. The first section is about 300 feet long, extending from the point A^3 to the gate and for some distance beyond. For the first 116 feet from A^3 the covers were missing, but for 86 feet beyond this they were *in situ*, and though the drain was silted up to within a few inches of the soffit, the removal of the soil was an easy task. The section of the deposit showed a mass of rich black soil, with thin layers of washed sand at intervals of a few inches near the top. The walls of the drain are partly of rock, partly of stone, and, except in places where the rock is cut out to form the bottom, the latter consists merely of a rough filling-in of stones, probably to allow the sewage to filter through. The height varies from 5 feet 10 inches to 7 feet 9 inches, and the width from 2 feet 6 inches to 3 feet. The walls are built of roughly-squared stones, pointed with mortar; no regularity of courses is observed, the largest stones being 2 feet high. The covers are of large stones, roughly squared, having good solid bearings, varying from 15 to 20 inches; their height averages

* The lettering in this chapter refers to General Plan II.

14 inches, and their breadth 22. An examination of the covers resulted in the discovery of two surface-water inlets from the street above. These inlets were formed in stones set above the covers by cutting a slit through the stones, ½ inch wide and 11 inches long, the under side being bevelled off. The water then found access to the drain through the wide open joints of the covers. This feature gives us the ancients' idea of what we now know as the street-gully. At intervals along this section of the drain there were found, at various heights from the bottom, four branch inlets from the north and west, measuring in width 2 feet 10 inches, 10 inches, 11 inches, and 12 inches respectively. Thirty feet beyond the point where the covers cease there is a sudden drop of 8 feet in the rock-bottom of the drain, as may be seen on Plate XI. in the longitudinal section, taken from the point where the covers end to a point a few feet beyond the city wall. This drop is down to a small pit only 5 feet wide, as the rock again rises 4 feet, whence it drops gently towards the wall. At this point the drain is joined at right angles by another large drain, at least 12 feet high and 3 feet 10 inches wide, with walls part masonry and part rock. Beyond the pit the drain runs for 48 feet, with a height increased to 12 feet to the point *b*, where a tank formed of cement occurs. It is 3 feet 4 inches square and 25 inches high, its floor being 5 feet above the bottom of the drain. From the top of the tank a small channel with masonry walls runs out at a different angle from the main drain through the city walls, where it is

lost. It has a small groove in the centre of its rock floor, which is really the top of the south wall of the main drain. Beyond the tank the latter runs for 10 feet, where it breaks out through the city wall.

Two Systems.

It is evident that we have two systems of drainage at different levels. The large drain coming from the west at *a* must have drained the western hill. It turns at right angles at *a* (where the pit was plainly formed by erosion), and then runs to the wall. The drain which we have traced from A^3 drains the Tyropœon, and appears to be later than the drain from the western hill. This relation may be seen in the cross-section at *d*, where the two periods are distinctly shown. The original drain—*i.e.*, the one forming an angle at *a*—was cut entirely in the rock beyond the turn, with an arched roof, and was over 7 feet high. When it was necessary to allow for the extra water coming from the later drain from A^3, the height was increased at least 5 feet. The chisel-marks where the arch had been cut away, leaving the peculiar shoulders, are plainly visible.

The tank at *s*, with the channel leading from it, appears to have nothing to do with these two drainage systems. In the October *Quarterly Statement*, 1895, p. 305, we argued that, after the old drain beyond *a* had been silted up to the level of the drain from A^3, this tank had been constructed as a catch-pit. But on further consideration of its size and position we have abandoned the idea. It was evidently built when the drains were disused.

Outside the city wall the drain falls rapidly, its rock-base worn and furrowed by erosion. The side-walls continue, but are farther apart. Thirteen feet six inches beyond the city limits a rough wall runs across the drain, built across the irregular rock, so as to leave small chinks beneath. Perhaps this was built to prevent an entrance into the city through the drain, and the greater width beyond the city wall may indicate a pool from which the sewage could trickle down under the transverse wall; but if this theory is correct, the transverse wall must be a later construction, as the erosion of the rock shows that there was once a rapid flow over this part.

Beyond this transverse wall the water-worn rock was followed for some distance, the side-walls of the drain having disappeared. No settling pond or final outlet was found, but the water-worn rock* suddenly terminates in a scarp 8 feet deep, covered with plaster. This proved to belong to a system of baths to be described in Chapter VI., constructed, of course, after the drain was disused.

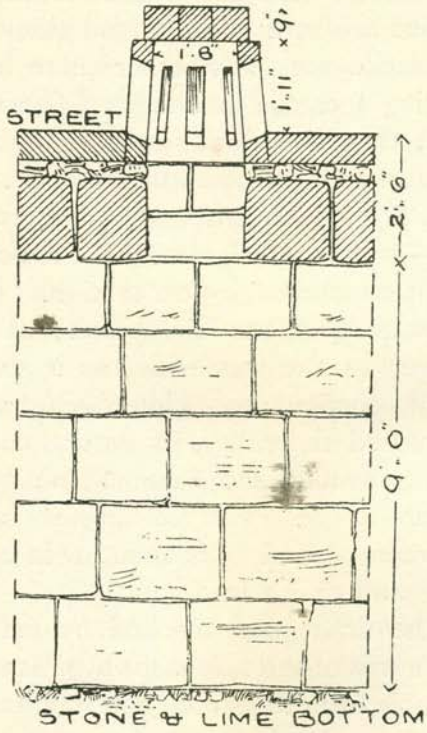
Another long section of the drain was seen between B^3 and L^3, a distance of 350 feet. For a long distance it is 9 feet high and 2 feet 8 inches broad. The construction is at first superior to anything observed in the section just described. The walls are built in courses 23 inches high; the stones are well squared and set in lime, with $\frac{1}{2}$ inch joint. The covers are well squared and dressed on soffit; they average 19 inches broad by 21 inches deep. It

* See section E—F, Plate XXI.

has many small inlets, and one large branch at H³, 2 feet wide, traced 115 feet to the north-west.

MAN-HOLES.

Nineteen feet to the south of H³ there is a man-hole, whose circular head rises 23 inches above the level of the street, here represented by a few



LONGITUDINAL SECTION THROUGH DRAIN.

polished slabs, not closely set. The opening was found covered by three slabs, and the head pierced around with eight slits, 2½ inches wide by 20 inches

high, which may have served the double purpose of surface-water inlets and of ventilation (see cut). This man-hole occurs just above the junction of two branches, entering the main drain at some height from its bottom. Beyond it there is a square man-hole, while 18 and 36 feet north of H^3 respectively are two others, the further one circular. Some 70 feet south of C^3 the drain contracts in width, but as the covers are here missing, and the walls partly ruined, we could not tell whether there had been a corresponding increase in height. The masonry is ruder even than the work along the first section, which is inferior to the construction at H^3.

The identity of this drain with that traced along the line A^3—D^2 seemed so clear that the points B^3 and A^3 were not connected by excavation. At L^3 it is on the east side of the Tyropœon; at C^3 it has crossed over to the west side, as a study of the longitudinal section on Plate XV. will show. Having crossed the valley, its natural course would be to sweep around the base of the western hill to the gate at D^2. The fall in the base of the drain between B^3 and D^2 is about 1 in 14; the fall between N^3 and C^3 is 1 in 9.

At L^3 the drain was blocked by fallen covers. Forty feet north of the side-steps at M^3 it was reached by a man-hole from the street, and found to be almost quite free from débris for 36 feet to the south and 52 feet to the north. Here its bottom is formed by the natural, unworked rock. Beyond this point it was reached by several shafts in a line to the north, some of which were connected by tunnels, so that

a great part of it was seen between M^3 and O^3, a distance of 575 feet. At O^3 it is pointing almost directly to the channel traced by Sir Charles Warren around the south-west angle of the Haram Area, and we have connected the two by a dotted line for reasons to be given later. Owing to the depth of the shafts necessary to reach the drain from point to point, to the occasional variation in direction and in the rise of the base which prevented our coming down upon it immediately in the trial shafts, and finally to the fact that, as a rule, the drain was silted up almost to the soffit of the covers, we could not make the actual connection with Warren's work within the limits of our permit.

As a rule, this part of the drain has about the same dimensions as the parts seen before, but at one point a contraction occurs both in width and height. This is due to a reparation effected by building a second lower wall against the original west wall of the drain. Work along this part was very slow, as the later wall had to be quarried away to allow of any progress. The bottom is sometimes rock, sometimes a making up of cement. Many side-inlets, varying in size, join the drain. It seems likely that the passage, discovered by Warren running south from the Haram Wall, at a point 90 feet east from the south-west angle, is one of these.* This passage seems to have been cut in two by the Haram Wall, and hence to be the older of these two constructions. It is 2 feet wide by 4 feet high, built of rubble masonry, with flat covering stones. It

* Jerusalem volume of "Survey," p. 170.

appears to follow the bed of the Tyropœon. From Plate VII. of the "Survey" I gather that where last seen at P^3 it had a level of about 2,244′. The drain at O^3 is about 9 feet higher, hence the passage may be one of the inlets which we saw to the south of O^3.

The Paved Street.

For a distance of about 450 feet between the points C^3 and N^3 this drain was found to run under a paved street. When a ruined street, in places 50 feet wide, blocked by fallen houses, having a branch joining it at one point, and forking into two branches at another—when such a street is buried under 20 feet of soil, so that for a distance of over 140 yards it has to be entirely examined by tunnels, only 3 feet wide, some details must be necessarily left to reconstruction. My best method will be first to explain the plan and the general construction, and then to give a detailed account of the remains in the order of their discovery.

Results obtained.

From N^3 to K^3, a distance of about 230 feet, the street falls to the south, and further drops with a 6 inch step occurring at intervals varying from 13 feet 3 inches to 18 feet 8 inches. At L^3 the width is 25 feet. The paving stones vary in size, the largest being 6 feet by 4 feet, and 18 inches thick. They are laid on a concrete bed made up of chips and lime, averaging 13 inches deep. The

street has a kerb 5½ inches high. The pavement shows many signs of foot-wear, but no marks of chariot wheels.

At K³ there is an increase of breadth towards the east. At J³ a branch comes in from the west, and beyond the junction the main street broadens to 50 feet. At G³ occurs a short flight of steps, confirming the idea that the street could not have been used for wheel-traffic. At C³ the street forks into two branches, the main line following the drain, which runs to the gate at D², and the other branch leading down by a series of steps to the Pool of Siloam.

Details of Excavation.

We may now describe the process by which these results were obtained. The street was first struck in a shaft at L³, and followed both north and south. Work here was very difficult, as the street was completely blocked by stones evidently fallen from houses on either side, for at the shaft the front-wall of a house was found standing a little back from the kerb, built in finely-dressed courses 18 inches high, set in lime. These stones, *in situ*, as well as the fallen stones, have beautifully-dressed comb-pick margins, with centres picked with a very fine tool. On pulling up the pavement to find the rock below, we found that this wall continues under the street level in rough rubble courses, 8 to 15 inches high, set in lime, resting on the rock, which is about 10 feet below.

At M³ a fine flight of steps projects some 5 feet

beyond the kerb line. The steps are five in number, and return round both angles. The landing-step is only 5 feet 4 inches across. Hoping that it might lead to an interesting building, we pushed back, but only to find that the house to which it belonged was quite ruined, only a sort of cellar remaining. Here the interval between the steps of the street is 22 feet. Beyond this point only three more steps were found, as the pavement is ruined, and even the kerb, which continues some feet beyond, is broken off at N^3. In tracing the drain as far as O^3, search was made at every point possible for signs of the street above the drain, or, in the absence of this, for the making up below its pavement; but these were absent, even where the covers of the drain were *in situ*. Only at one point was observed a bit of a kerbstone (similar to the kerb of the street), with a wall of a house back of it, but the absence of the making-up below it makes it doubtful whether it belonged to the desired street. At points to the south where the pavement was ruined, we found this making-up still existing above the covers. However, the fact that for 450 feet of its length we have proved the drain to run under the street suggests strongly that they were always in connection. It is quite possible that the drain may have been in use after all signs of the street and of its making-up had disappeared from certain parts of the line.

From the shaft at L^3 we followed south along the eastern kerb till we came to a step, and then, turning at right angles, we pushed along the line of the

step to the western kerb, finding the width of the street to be 25 feet. The western kerb was then followed south for 44 feet, where the modern road, which is really an open drain, occurs. Sinking a shaft at K^3 on the other side of the gully, we struck the street again, finding the eastern kerb 7 feet out from the projected line of the kerb at L^3, showing that at some point south of the step, where we had turned away from the eastern kerb, the street had broadened towards the east. Immediately to the south of K^3 the pavement was missing.

Branch Street.

Another shaft was sunk at J^3, above the small branch drain entering from the north-west. This was found to run under a branch road, of similar construction to the main road, having a kerb on either side, but with a width of only 10 feet. This was traced north-west for 35 feet, where it was ruined; but the drain was followed 80 feet further, where it was cut off by a later building. South of this branch we followed the western kerb of the main street, to a point opposite our tunnel from C^3, and there made a connection between the two. It is evident that somewhere between I^3 and J^3 the street had been broadened towards the west, but the exact point we did not ascertain, as for 33 feet north of I^3 the western part of the street is ruined. We have shown that somewhere near the junction the main street had been broadened also towards the east, giving a breadth of 50 feet. That the eastern part of the street is also ruined was proved

by a shaft at H^3, where only the concrete bed, found in other parts to underlie the pavement, remains. Nineteen feet to the south of H^3, however, there are signs of the street. We have mentioned the masonry man-hole leading down to the drain at this point. Its top projects 23 inches above a few paving-stones, which, notwithstanding the fact that they are set with a very wide joint, must belong to the street, as they occur at the proper level.

At I^3 the paving-stones appeared again, and were traced south. After 12 feet a step occurred, and a kerb, 16 inches high, was observed, which we traced for 10 feet 7 inches, where it terminated in a rounded corner. This suggested the junction with a street from the west, but no pavement was found to extend in that direction. Beyond this kerb we traced the pavement for 20 feet to G^3. Though the kerb was missing, the paving stones all ended in one line, showing that we were following the true kerb line. At G^3 the angle alters, and soon a short flight of steps was encountered, descending towards the south, with breadth of tread varying from 2 feet 6 inches to 4 feet. No kerb was found, but the steps all end in one line to the west, which, however, is probably not the kerb line, as will shortly appear. From G^3 south the street was blocked by fallen buildings.

From C^3 south the work was very interesting. The pavement continued only for 25 feet, where it was ruined. The western kerb line was found for 10 feet at D^3, where it was ruined at either end. At this point a difference of jointing was observed in

the pavement, one set of joints following the angle of the kerb line at D^3, and the other following the angle of the line C^3—G^3. This difference of jointing is the key to the situation. The drain runs with the first line; the second line points directly to the stair-way leading to the Pool of Siloam. The drain was traced as far as B^3, where it points to the drain running to the gate south-west of the Old Pool. At B^3 and for 70 feet back the covers of the drain are missing, hence the street above it is missing too; but, as said above, the fact that for 450 feet we have proved this drain to run under the street hints strongly that they continued in connection.* The difference in the jointing clearly indicates a fork, hence the inference is a just one that the main road ran down the Tyropœon to the gate just mentioned, with a branch having as its terminus the Pool of Siloam. A street pavement was found immediately within the gate, and indications that it continued 120 feet east from the gate were given by the surface-water inlets leading down to the drain. (See p. 134.)

In our reconstruction we have dotted in the parts which were not seen, according to this inference. The western kerb line was certainly seen at G^3—I^3 and at D^3, and the most natural supposition is that these two points were connected. The line C^3—G^3, thus, cannot be a kerb line, but may be accounted for if we suppose that the builders carried back as far as G^3 the joint line of the fork leading to the

* The fall in the street from B^3 to the gate would be about 1 in 13; the fall between N^3 and C^3 is 1 in 9, as the street is stepped down from point to point.

great pool stairway. We have accordingly dotted in the steps of the small stairway as far as the line D^3—G^3, assuming that the parts to the left of the joint have been removed.

Longitudinal Section.

On the plan it will be seen that a good part of the space between the fork of the road and the stairway is occupied by the large blockage and by the Byzantine church, both later. A section has been taken longitudinally through the street and drain from a point north of N^3 to the fork, and then along the branch with the stairway leading to the pool.* From this section it will be seen that between the level of the street at the fork C^3 and the level of the top step of the stairway found leading to the Pool of Siloam there is a difference of 25 feet. Accordingly, we have reconstructed a flight of steps between the two points, in the space mainly occupied by the blockage and church.† The top step of the stairway, actually seen, has a broader tread than any of the rest, hence it may be a landing between the two parts of the flight. The relation some distance beyond the fork between the level of the drain, presumably under the main road, and that of the branch with steps leading to the pool, may be seen in section X Y, taken across

* See Plate XV.

† To test the theory that the northern approach to the stairway might have swung around the blockage, we drove a tunnel west for 20 feet from V^2, but the rapidly rising rock rules out the theory.

the Tyropœon, where it seems to narrow to a neck at the point where the pool occurs.

The longitudinal section shows that the street crosses the valley at an angle. At L^3 it is well up the eastern slope, as may be seen by a comparison with section C—D. At J^3 it is more nearly above the bed. At V^2 the branch leading to the pool has crossed over to the western slope, the main road which follows the drain at a high level being here, of course, considerably higher up the western slope (compare section X Y). The relation between the drain and the bottom of the valley at L^3 is seen at shaft 8 in section C—D. The exact point where the drain runs across the bed of the valley was not ascertained, but taking into account the fall in the base of the drain, and the probable fall of the valley bed, we assume that at that point there are about 35 feet of accumulation between the two. At J^3 a shaft was sunk to the rock, but no signs of a more ancient roadway were found. From M^3 north for some distance the rock forms the bed of the drain, on which the roadway is directly built.

Search for Eastern Branch.

In following the street, especial attention was given to two questions. First, Did any branch road or stairway lead towards Ophel? Second, Did a contemporaneous wall run across it at any point? In order to determine the first question it was necessary to follow the eastern kerb. From L^3 this was pursued north to N^3, where it was ruined, no branch being found. From L^3 it was followed south

for 18 feet, when we pushed west to find the breadth, and then followed the west kerb to the modern road. At K^3 the east kerb was found again (though ruined a few feet south of this), the street being broadened as described before. I wished to examine the unexplored portion between K^3 and L^3, but the open drain above made this impossible. At H^3 and for 70 feet south the pavement of the eastern part of the roadway was found to be destroyed. Thus, at the places where examination was possible it will be seen that no eastern branch was found.

Search for Wall.

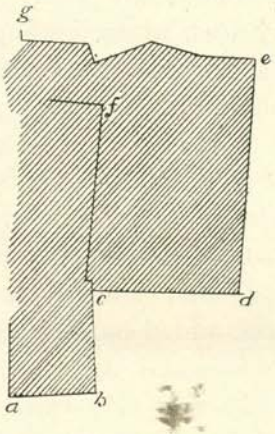
As to the second question, that of a contemporaneous wall crossing the line of street, it has been proved that no such wall exists between D^3 and N^3. For between these points the pavement has been traced continuously (with one exception), showing no signs of wall or gate. The exception is the distance between I^3 and a point some 20 feet south of J^3, where we got off the line. But our tunnel from I^3 north to a point where we connected it by a side-tunnel with the one from J^3 ran across the line of the problematic wall, and proved our negative as conclusively as if we had run along the street itself.

The Blockage.

Immediately to the south of D^3 occurs the large blockage, clearly later than the street and the steps, as it forms a barrier between these two constructions, which must have been in connection. This blockage is not a city wall, but some apparently isolated build-

ing. It is, accordingly, possible that this later blockage occupies the place once crossed by a city wall with a gate, through which the branch road to the pool passed.

It will be necessary to say a few words about the blockage which formed such an interruption to our excavations (see plan). It was first struck at *a*, where it forms a corner, a true face being followed north for a few feet. Along the face *a*—*b* the rock



PLAN OF BLOCKAGE.

drops 1 in 2, and at the corner *b* seven courses remain above the rock. All of these, except the two highest, consist of rude rubble set in mortar. The top course is 2 feet high, the stones being fairly well squared. The face *b*—*c* consists of small rubble set in mud. Turning at *c*, it runs towards the east, preserving the same rude character until reaching *d*, where we have a strong corner similar to *b*. Eleven courses, averaging 17 inches high, are preserved. The

masonry is set in good lime, and consists of plain-faced stones, roughly squared, with one boss-and-margin stone. The corners *d* and *e* are on the rock, but at points in the line between the wall rests on solid loam. From the corner *e* we tunnelled west along the very irregular face to *g*, where the wall runs out to nothing. At a point midway between *d* and *e* we broke through the wall at right angles with the face to ascertain its thickness. We quarried through solid masonry, the stones growing larger and larger for 17 feet, when, finding no inner face, we stopped. As the distance from *c* to *d* is only 25 feet, we conclude that *c d e g* represented a solid foundation. This was evidently added on to the line *b c f*, for although *c*—*d* is bonded into *b*—*f* at the corner *c* for 3 or 4 feet, yet a distinct face, plainly a continuation of *b*—*c*, was found to run to *f*. In tunnelling along this rude rubble face, we had to quarry through the added blockage *c d e g*. From the corner *f* we followed the face to the west for 18 feet, when this wall also runs out to nothing. Attempts to find its thickness made from the east and north proved that this also is a great foundation blockage. The line *e*—*g*, though a real face, does not indicate the extent to which the valley has been blocked up with masonry, for in a shaft immediately to the north, from which the line *e*—*g* was reached, we had to quarry down through a confused mass of building to a depth of 20 feet, below which there was soil.

The exact purpose of the blockage is undetermined, though the work upon it cost us much labour

in tunnelling and quarrying. As the fall in the rock between *a* and *d* is 15½ feet, it is evident that the valley was partly filled up to support some important building. The corners at *a*, *b*, *d*, *e*, and *f* indicate that it had nothing to do with a city wall. Thinking that the corner *a* might be the ingoing angle of a gateway, we drove a tunnel 20 feet to the west up the rapidly sloping rock, but found no corresponding angle nor signs of any wall.

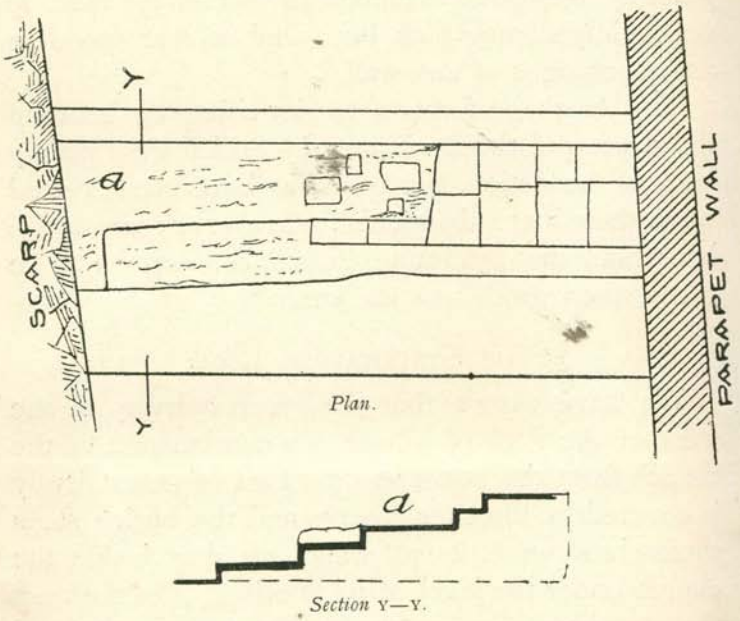
This blockage forms a barrier rising up between the street and the pool stairway, which were plainly once in connection, hence it must have been erected when these were abandoned. It also appears to be later than the Byzantine church, for reasons to be given when we discuss the latter.*

The Stairway to Pool.

We have shown that the great stairway to the west of the Pool of Siloam is a continuation of the branch from the street at c^3. Part of the stairway is covered by the later church, and the buried steps themselves were found when we dug inside the church under the level of its flooring. On the west the steps butt against the scarp,† and on the east against the west wall of the original pool, which also served as their parapet. As the scarp and wall are not parallel, the breadth of the steps varies from 27 feet at the top to 22 feet at the bottom. The number of steps is thirty-four. They vary in height from 6 to 9½ inches, and are arranged in a system of wide and narrow treads alternately. The wide

* P. 186. † See Plate XVI.

treads vary from 4 feet 3 inches to 4 feet 11½ inches, and the narrow ones from 11 inches to 17. The main part of the stairway consists of steps built of hard, well-jointed blocks of *mezzeh* limestone, laid on a bed of chips and weak mortar, formed of mud and lime. But, pushing along the whole breadth of the



DETAIL OF STEP *a*.

stairway along step *a* to the parapet wall, we found that for 10 feet 9 inches from the scarp the tread consists of the natural rock well polished by foot-wear.* For a foot from the scarp the tread is 6 feet 4 inches broad; for the rest of this distance the breadth varies from 3 feet 9 inches to 3 feet 4 inches.

* See plan of step *a*.

Then for 5 feet the tread consists of a patchwork, the irregular rock being levelled up with bits of paving. Here the breadth has the normal measurement of 4 feet 4 inches, the additional breadth being furnished by a stone step. That this could never have extended to the scarp is shown by the level of the rock at that end. From this point to the parapet the tread is of laid stones. In our tunnel down the steps, a few feet from the parapet, we found several instances where paving stones levelled up the rock, but in general the steps were built. However, pushing a tunnel south from *a* along the scarp, a system of rock-hewn steps, well polished, appeared. Their treads are of varying breadths, one of them being patched up with a stone step. They are at slightly higher levels than the corresponding steps of the stair near the parapet. Accordingly, it is needless to say that they do not represent an older system of steps, covered at a later period by stone steps which have since disappeared. But that they represent an older system of steps, enlarged and extended by the builders of the stone system at this point, seems probable. Though well polished by foot-wear, they are very rudely cut, in great contrast to the well-squared stone steps, and the two cannot be ascribed to the same constructors. Had the rock fallen naturally at the time of the builders of the stone steps at this point, they would either have cut well-squared rock steps or have cut down the rock to a level admitting of the insertion of stone steps to correspond in level to the rest of the system.

North of *a* we removed stone steps at the points

b and *c* to find out if the rock was cut into the form of steps. In both places it was found to be in a natural, irregular state, without foot-wear, and at *c* some of the red, natural soil was still clinging to it. The rock was also seen below the top of the stairway at *d*. The easy fall of the rock shows that the road might have run along the red earth, without steps, as far as *a*.

The top step of this stairway has a much broader tread, and may be a landing between it and the stairway we have reconstructed to the north. The single step *down* from it to the north is difficult to explain.

The Ancient Pool of Siloam.

Though our excavations at the pool were not undertaken originally for the sake of studying the pool itself, but rather to determine questions relating to the stairway and the church, before showing the connection between the stairway and the pool it will be convenient to show first what light has been cast upon the latter. We first struck the western wall of the original pool, where we found step *a* butting up against its western face, which thus also served as a parapet for the stairway, 4 feet thick. This wall was traced south along its eastern face for over 30 feet, where a corner was reached. At this end five courses of masonry were seen, the lowest, of rough stones, set on the top of the scarp. The courses vary in height from 12 to 18 inches. The stones are mainly small, their lengths varying from 1 to 3 feet. They are well jointed and set in lime,

with a fine comb-pick dressing, appearing faintly, as the wall is much weathered. At intervals varying from 3 feet 1 inch to 4 feet 2 inches in the second course of good masonry from the bottom, are bevelled sinkings in the stones $5\frac{1}{2}$ inches square, $1\frac{1}{2}$ inches deep at top of stone, the bevel running out as it descends. They look like cuttings made for the purpose of a raking strut to shore the wall, but why this should have been necessary in a course practically resting on the scarp is hard to explain. Fallen in front of the wall were two large stones ornamented with an inverted ogee moulding and fillet. The scarp is not very well worked, and has a decided batter.

The wall turning to the east from the corner is 5 feet 3 inches thick. At the angle three rock-hewn steps were found, descending to the north. East of these steps a pavement appears. At a distance of 4 feet 6 inches from the west scarp, and running parallel to it, a stone division was traced for 21 feet. This is 2 feet 6 inches high, $12\frac{1}{2}$ inches broad, and has a rounded head, as seen from section G H.

Covered Arcade.

We had thus reached the south-west angle of the original pool. The north-west and north-east angles had been determined by the excavations of Dr. Guthe,* giving to the northern wall a length of 75 feet. The west wall runs at right angles to the northern wall, and the distance between the south-west and the north-west angles is 71 feet; hence we

* See his Plate II.

have proved the original pool to have been almost square. A happy accident permitted us to see the north-west angle. While sinking a pit in search for the south wall of the church, a thick block of stone was observed at one side of the pit, under which the earth began to run. Crawling under the stone, we found ourselves beneath a roof of huge covers extending from the top of the wall to a large pier. The earth which had once filled the place had sunk, leaving an area some 4 feet high, where we could examine this north-west angle at our leisure. The cover at the angle has a clear bearing of 10 feet by 9 feet 7 inches. The mouldings of the corbel course of the wall are precisely similar to those found on the stones fallen in front of this same wall further south. The masonry is also quite similar, but as the roof is here preserved, the stones are not weathered. Dr. Guthe indicates on his plan the position of the pier, but as he does not draw this in elevation, we sank a shaft along its side, desirous also of comparing the level of the floor with that of the pavement found near the south-west corner, and with that of the modern pool. At a height of 12 feet 9 inches from the pavement, the first springer of an arch is seen on the pier, indicating an arcade on this side of the pool. Some of the stones of the pier have a fine comb-pick margin, with a very fine pock-marking in the centre. The level of the floor of the arcade at this point is 1 foot higher than that of the pavement found at the south-west angle, and is level with that of the present pool at a point opposite, strong indication

that the portico was included in the pool itself, a fact also proved by the relative levels of the portico pavement and the outlet channel, to be noticed presently. The stone division with rounded head was found to be in the same position relative to the wall as seen to the south. The north-east angle of this same division, evidently a feature of the arcade, was seen by Guthe, as well as a considerable portion to the west and south of the corner.

We may safely assume that the arcade ran around the four sides of the pool, and represents the "quadri-porticum," or four-sided arcade of the Bordeaux Pilgrim.* The channel left between one division wall and the limits of the pool was found by Dr. Guthe to have a cement bottom. The rounding of its head towards the channel, and the extreme polish on its stones, suggest that it may have been used as a bench where pilgrims could have sat and bathed their feet. A tunnel in the rock, forming the base of the south wall of the pool, shows how the overflow was carried off.

A glance at section G—H will show that a large part of the western wall of the pool was hewn out of the solid rock. This is true also of the northern side. I have spoken of this arcaded pool as the original pool, viewed in relation to the present pool, which is a contraction within the area of the former. However, it seems probable that these rudely-hewn scarps indicate the sides of the pool before it was built up in Roman times.

* See also Phocas (XVI.), and Theoderich (XIX.), Palestine Pilgrims' Text.

Paved Court.

To the south of the pool wall an extensive pavement was found, 5 feet 9 inches higher than the level of the pool pavement. This allows for a depth of water available for all bathing purposes. The southern limit of the pavement was shown by the low scarp, some 37 feet south of the pool wall. Leading down on to this pavement from the south were found eight steps, with 6 inch risers, the stairway being ruined at the top; but there were clearly once three more, as 7 feet 6 inches beyond a pavement occurs, 18 inches higher than the last step seen. We have here evidently a court in front of the pool. Resting on the pavement (and hence constructed after it) was found a wall with a column in front of it, also placed on the pavement. The low scarp is important in showing that the great stairway had the pool for its terminus. The eight steps are in line with the steps discovered later at E^3,* and appear to be part of the approach from Ophel.

The west wall of the pool was also used as a parapet for the stairway, and this continues south beyond the pool corner. South of this continuation were found several rock-cut steps, all below the level of the pavement, which has now disappeared at this point, but which once must have covered them.

Purpose of Stairway.

We are now in a position to suggest, with great probability, the *terminus ad quem* of the two systems

* See p. 176.

of steps described above. They were both of them means of access to the pool. The rock-cut system, traced for only a short distance south of *a*, may have descended to a point just opposite the rock-cut steps just mentioned, and then have turned at right angles to the scarp terminating with these latter steps. The built system terminates in a level pavement, which extends south for 18 feet, when a step down occurs. This pavement continues south (in a more or less ruined condition) for 19 feet, when it butts against the scarp afore-mentioned. A step to the east, however, brings it on to the pavement of the court in front of the pool. At the point where last seen the south wall of the pool was ruined down to the level of the pavement, hence it is probable that the entrance from the paved court no longer exists.

The Siloam people took advantage of our excavations to erect a small mosque in the north-west angle of the original pool, resting their flooring on the débris. They removed the later arch leading to the opening of the tunnel, and laid bare about one-half of the upper part of the northern wall of the original pool, which is mainly of rock. In order to make the plan more intelligible, we have reconstructed the pool, drawing in hard lines the parts seen both by Dr. Guthe and ourselves.

Connection with Warren's Discoveries.

Having determined the *terminus ad quem* of the street and drain, we may now consider the question of their *terminus a quo.*

Though our street was lost some 1,150 feet from the south-west angle of the Haram Area, and the drain was traced only to a point some 700 feet south of this corner, yet the discoveries of Sir Charles Warren at this same angle give a hint as to the further course of both.* From a point 160 feet north-west of Barclay's Gate, he traced a channel along the west side of the Haram Area to a point some 130 feet south of the south-west angle, a distance of about 550 feet. For the first 160 feet it is only a narrow passage 18 inches wide, having a flat roof of flagging. It then broadens to a width of 3 feet, and, turning to the south, runs for 123 feet, with masonry walls, roofed over by a semicircular arch, the height being 8 feet. It then enters the rock, which continues to the south-west angle, the height varying from 8 feet to 12 feet, the breadth from 3 feet 9 inches to 4 feet. The roof is of arched masonry. In its course it passes through three rock-cut chambers. Two of these are circular; the other is rectangular, and from it a passage runs east, where it is cut off by the Haram Wall. The channel is also connected with another circular rock-hewn chamber, which is cut in two by the Haram Wall.

After passing around the south-west angle, and changing to a more easterly direction, it emerges from the rock, being carried on in masonry, with an arch of five voussoirs. "After about 40 feet it turns to the south, and is continued in a drain 2 feet

* See Jerusalem volume of the "Survey," pp. 172-184, and Plates V. and XXVII. to XXX.

wide, roofed over with flat stones for a further distance of 59 feet, when it becomes silted up and very narrow."*

Warren points out that the rock-cut canal must be older than the Haram Wall, which is built over the passage and cistern leading off from it. He suggests that the vaulted roof may be later.

Along a distance of more than 230 feet, extending from the south-west angle of the Haram to a point beyond Barclay's Gate, Sir Charles Warren found a pavement connected at intervals varying from 18 to 45 feet by masonry shafts or man-holes with the channel below. Along this length it has a fall of 8 feet, or of about 1 in 30. This clearly seems to be a street, the breadth of which is about 40 feet, as the pavement extends from the Haram Wall west to the pier of Robinson's Arch. In the written account I find no mention of a kerb, but on Plate XXXIX. of Warren's series there are clear indications of a kerb (12 inches broad and 9 inches high, if drawn to scale), butting on the pier of Robinson's Arch. At this point the pavement falls to the *east*, *i.e.*, along its breadth, but this may have been caused by the immense voussoirs of the arch which have fallen on it, as well as by the pressure of débris above, here 42 feet deep. At the south-west angle Warren traced a similar pavement for some 14 feet along the south side of the Haram Wall, at a level apparently 18 inches higher than that of the pavement at the pier. This pavement

* Jerusalem volume, p. 180.

indicates that the street followed the channel, which skews around the angle of the Haram.

Two of the man-holes are connected directly with the rock-chambers through which the channel passes, and whose floors are 3 feet below the level of the channel floor. These chambers were supposed to be cisterns to contain a supply of water, which might be dipped up in buckets let down from the street through the shafts. Four of the shafts, however, descend immediately into the channel itself. They all terminate in a head projecting some 18 inches above the level of the pavement.

A comparison between this pavement and the street traced by us shows their similarity. The paving stones agree in size. In both cases they are of hard *mezzeh*, well polished. The breadth of our street varies from 25 to 50 feet; the pavement near the Haram is some 40 feet broad. Our street has a kerb, and indications of a similar kerb are found in the northern street. Both fall to the south. Both are connected with channels below by man-holes, whose heads project above the street-level.

Turning again to the channel discovered by Warren, we notice that at the point where it was last seen it is pointing in general towards our drain, which is some 570 feet to the south. Comparing the level of the bottom of the channel at the south-west angle with the level of the bottom of our drain at the most northerly point to which it was traced, we find a drop of about 1 in 13. The average fall in our drain is about 1 in 11. The fall in the northern channel itself is about 1 in 20. The

central part of the northern channel is both wider and higher than our drain, and differs from it in being covered with an arch; but the north and south parts are narrower, and are roofed with ordinary flat covers. The higher part of Warren's channel is called an aqueduct, but for the last 59 feet, where it narrows and the arch ceases, it is said to be "continued in a drain." From the point where it begins to be rock-hewn, as far as the circular chamber nearest the south-west angle, this channel is clearly older than the Haram Wall, as the latter is built over a passage and chamber connected with the former. Beyond this circular chamber the channel bends around the angle of the wall. It is not clear whether this turn was meant to avoid the already-existing wall, or whether it was due to other reasons. At any rate, the channel was used after the wall was built, as shown by the man-holes leading to the street contemporary with or later than the construction of the wall. The first 160 feet and the last 59 feet traced by Warren appear to belong to this later period. Leaving aside the question of the uses of this channel in its earlier period as one which does not concern its relation to the street, and hence its relation to our excavations, I am inclined to think that during its later period it was used simply as a sewer. In the aqueduct traced by Warren and ourselves near the Cœnaculum, the walls and floor, even when rock-hewn, were usually seen to be covered with plaster, but no such feature is mentioned in the description of the channel under consideration. The shafts

leading up to the pavement have been supposed to be dipping-holes, by which clean water could be brought to the surface in a bucket. They appear to me, however, to be simple man-holes for cleaning out the drain, used also, perhaps, as surface-water inlets. It cannot be said that they are too close together for man-holes, as similar shafts occur at even smaller intervals in our channel, which was clearly proved to be a drain by the many small branches. The chambers called cisterns, through which Warren's channel passes, thus appear to have served in their later period as catch-pits for the sewage.

It was unfortunate that we were not able to test the connection between Warren's channel and ours. As this seems very probable, we have dotted in an inferred line on the plan. His pavement also appears to be a continuation of our street. Assuming the identity of the two constructions, we have a street passing along the west of the old Temple, under Robinson's Arch, and running down the Tyropœon with a fork above the Pool of Siloam, one branch terminating at the pool and the other sweeping around the base of the western hill to the gate we discovered at D^2. Such a road must have crossed over the rock-bed of the valley twice. This bed was determined by Warren to be 90 feet east of the south-west angle of the Haram Wall. Accordingly, at the latter point the street is on the west side of the valley. At L^3 we find it on the east side, and at C^3 it is back on the west side again.

Section C—D.

I must now describe section C—D (Plate XV.), which comprises a line starting some 600 feet west of the Cœnaculum, running down to the bed of the Tyropœon and up on to Ophel. This section was made with a double purpose. The first was to ascertain whether the ancient upper city had a wall of its own, which this section might strike at right angles. Such a wall should finally have run along the cliff inside the modern city west of Robinson's Arch, the top of said cliff having a level of about 2,429′. This study was begun some 250 feet west of the point actually shown in the section. Between the real point of starting and what I mark as shaft 1, most of the ground to the rock was examined by the Augustinians and ourselves. The results of this work, negative as far as concerns an ancient wall, are described on pp. 76, 77. I mentioned that the Augustinians had removed masses of masonry at u^1 and w^1,* but both are in the line of the Crusading or Saracenic wall we have described before, and, if not belonging to it, probably represent later constructions. This late wall showed no signs of having been built on an old line. In shaft 1 the rock was found at a depth of about 15 feet, with a scarp descending for 10 feet more, the base thus being 25 feet below the surface, which here has a contour level of 2,404′ feet. Hence, the base of this scarp is some 50 feet below the contour 2,429′, the level of the cliff west of Robinson's Arch, on which cliff

* See General Plan I.

the supposed wall was to run. Accordingly, search for the wall further down the hill appeared to be useless.

The second object of the section was to determine the rock contours of the western hill and of the Tyropœon Valley. Between shafts 1 and 2 the rock crops out at one point, and a glance at the section will show that no intermediate shafts were necessary. Moreover, the rock, exposed at several points not far south of the section line, enabled us to fill in the rock line. At shaft 2 rock-hewn dwellings were found. In shaft 3 we struck a wall, marked Q^3 on General Plan II., whose thickness of 8 feet showed it to be worthy of examination, as we were looking out for a continuation of the wall and scarp N^2—V^2, found running along the base of the western hill. In describing this wall, on pp. 116-125, we have shown that it was lost at V^2.

Rock-dwellings and Wall.

The wall Q^3 rests upon a scarp found at one point to be 9 feet high. The wall was followed north almost to the road. For a distance of 61 feet several courses, averaging 10 inches high, are standing, the masonry consisting of rubble set in lime. Some 30 feet south of the road there is a rock-hewn chamber cut back into the scarp, with two square doorways, roughly lintelled by the wall, which is here 12 inches out from the face of the scarp, against which it is built. Here the original thickness could not be determined, as the part once higher than the top of the scarp is ruined. The scarp thus seems

to be older than the wall, but the chambers were still in use when the wall was built. This fact appears to rule out the theory that the latter was a city wall. About 71 feet south of the road the wall is ruined, but for 33 feet there are clear indications of masonry foundations, continuing, as the scarp turns west, for 9 feet 4 inches, where it again turns south. Here the foundations cease, but, as we thought the scarp might represent a line of wall older than the masonry, we continued to follow the former. For over fifty feet it was traced along various turnings. It is never more than 10 feet high, and its top is buried under only a few feet of soil. At one place a large chamber has been hewn back into the rock, with apertures, like small cupboards, cut into its sides, similar to other niches found at other points of the scarp, clear indication that we were following a system of rock-hewn dwellings, such as we had found before on this same line, and such as occur at many places on this western hill. The rock forming the back part of this chamber was plastered. A thin wall of masonry enclosed it in front. The many windings of the scarp, occurring close together, while quite explicable on the theory of dwellings, would have no place on a scarp hewn for the base of a city wall.

In the meantime a shaft* had been sunk to the north beyond the road, in order to see whether the scarp or wall continued in that direction. A rough wall, partly in the rock, was found in the line desired, but only $4\frac{1}{2}$ feet thick. Pushing west from its inside

* Not shown on plan.

face for 9 feet, under the road, we found a wall, running apparently parallel, of similar thickness and material. These two walls evidently belong to a small house. Between these two walls, and outside the first one, were two parallel walls of a cemented cistern, 4½ feet thick, older than the house. We trenched and tunnelled for some 30 feet along the descending rock east from the first wall, in order to catch any turn of the scarp or wall desired, with no results beyond the finding of another rude wall 4 feet thick. Thinking that the cistern may have occurred within the thickness of the desired wall—as sometimes happens, notably in the Crusading wall, discovered in the western hill—we followed the western cistern wall beyond the cistern limits, where its thickness was still found to be only 4 feet. In this tunnel another cistern was crossed. Thus, as the excavations both to the north and to the south of the shaft were equally unproductive of results, this work was abandoned.

Ruined Buildings.

To return to section C—D. In shaft 5 was found a ruined circular archway, running north and south, resting on an older wall founded on the rock. Built up against this, to the west, is a vaulted cistern in perfect preservation, which must be later, as it blocks the entrance to the archway. Though so near the surface, its existence was unsuspected by the landowner. The opening of the archway is 8 feet 4 inches, and the distance from the key of the arch to the floor is 10 feet. A good deal of

excavation was done at this point, but with no satisfactory results, as the chamber to the east, into which the arch first appeared to open, turned out not to be bonded into it. In the angles formed by the walls of this chamber and the piers of the arch, a water-conductor, formed of clay faucet pipes, runs down to a concrete channel in the floor. The pipe sections are 15 inches long, with a diameter of $5\frac{1}{2}$ inches. They are made of finely-worked clay, the inside slightly furrowed.

In shaft 6 the top of a wall running north and south was found at a depth of 10 feet, resting on the rock, and standing for a height of 30 feet. The upper part is of later construction. The lower part is 6 feet 5 inches in thickness, built of small, random rubble. A thin wall is bonded into it at right angles, proving that we have here no city wall. This is further proved by its small masonry, its direction, and, finally, its position almost at the bottom of the valley. Between shafts 7 and 8 the rock was seen almost the whole way, as tunnels were driven from the bottoms of the shafts. The gallery from shaft 7 to the east was driven up the rapidly-ascending cliff till the candles ceased to burn.

Remains in Deep Shaft.

It may be interesting to note the remains in shaft 7, which hit on the very bed of the valley, in order to show how many periods were passed through as we sunk down 70 feet to the rock. For the first 24 feet we found only soil and ordinary débris. Then occurred one course of a roughly-built wall.

At 30 feet appeared a covered drain, 1½ feet square. From the level we infer that this was a feeder to the drain under the street to the east. Then down to 37 feet we passed through nothing but débris. Then, to 46 feet, we encountered fallen stones. Projecting from under these appeared an iron piping, similar to a gas-pipe. At 52 feet was the base of a wall standing to a height of six well-laid courses, forming the angle of a doorway: the stones were rough-picked. Below this, nothing but débris mixed with clay. On the natural rock were 2 feet of white clay. The pottery, which showed Byzantine and Roman types at first, changed to Jewish as we descended.

In shaft 8 we have the street. The foundations of the houses lining it to the east rest on the rock. Shaft 9 was sunk along the exposed scarp, which descends below the surface line for a few feet, the rock then sloping naturally towards the west.

This section, which has taken so few words for its description, involved a great deal of labour. The results are by no means unimportant. Though not finding the desired wall enclosing the upper city, we have determined the form of the western hill, and have found the true depth of the Tyropœon. To the making of this section we are indebted for striking the street, which has turned out to be such an important clue to the topography. For the well-cut stones fallen across almost its entire length, as well as the walls actually *in situ* along the kerb, together with the many side-feeders to the large drain, show how densely populated was this Tyropœon Valley. Signs of buildings found in all the other

shafts, at various depths, confirm this view. It is generally assumed that the rock-hewn dwellings were the work of the original inhabitants. If that be so, we now see that the western hill was occupied at the earliest times.* Our work, taken into connection with that of the Augustinians, has shown that the summit of the hill was occupied in Roman as well as in post-Crusading times; hence it is no wonder that the older wall, if one existed, should have entirely disappeared.

Search for Wall crossing Valley.

The description by Josephus of the ancient south wall of Jerusalem appears to indicate that the Pool of Siloam was excluded from the city. The line is variously drawn, some archæologists holding that from the south-west angle on the western hill it ran down to a point near where we found the gate at D^2, and then made a bend immediately above the pool, turning south again along the western slope of Ophel to the termination of that hill west of the Old Pool, where it made another bend and ran northwards along the east slope. Others would make it cross the valley somewhat further north. In order to test the theories just stated, we followed the bed-rock in a continuous series of tunnels from the point N^2 to a point somewhat south of L^3, a distance of almost 400 feet. We have described (p. 116) the scarp and wall to the west of the pool traced as far as V^2, where it runs out, not crossing the valley. Beyond this,

* See a paper by Dr. Schick on these rock-dwellings, in the *Quarterly Statement* for 1890, pp. 12 *et seq.*

many remains of building were found, but no city wall. First came the blockage, described on p. 148, which was proved to be an isolated building. Many thin house walls were encountered, all on the rock, none of them built with lime. The stones of one were well squared and set, averaging 14 inches high, with picked centres and chisel-drafted margins. At one point was found a cistern set on the rock with masonry walls, having a double lining, the inner coat being made of lime and broken pottery, and the outer of lime and ground pottery, a cement known to the Arabs as *hamra*. At another point were found fallen several large paving stones, 14 inches thick, pick-dressed.

To prove a negative is in some instances an endless process. For example, starting with a good clue, we have traced a wall from the Protestant Cemetery, down the western hill, across the valley, and up on to Ophel. This wall was quite ruined at several points, but, as the line became clear, it was always picked up again. Supposing the search for it had been conducted by driving only one or two long tunnels north and south, and that these tunnels had happened to cross the line where the wall had been completely ruined. In the case of the supposed wall crossing the Tyropœon on the rock, we have proved that no city wall now runs at right angles to the path of the tunnel, 400 feet long, driven north and south ; but to affirm that no such wall exists at some point to the east and west of our tunnel would not be scientific. The only way to exhaust the possibilities would be by the tremendous task of

driving a series of parallel tunnels, or of clearing out a large part of this deep valley. Leaving unsettled, for the present,* the question of an older wall on the rock, we may affirm, with considerable confidence, on the basis of the facts given on p. 148, that no city wall crossed the valley above the blockage contemporaneously with the street and drain.

Examination of West Slope of Ophel.

This theory was further tested by a thorough examination of the west slope of Ophel. The results of this are shown on the section on Plate XVII., which extends from the place where the hill tapers down to a point, near the junction of the Kedron and Tyropœon Valleys, northwards to a point where it is cut by the section C—D, a distance of 725 feet. The object of this study was double: first, to see whether there exist any remains of an ancient wall along the top of the rock; second, to ascertain whether any rock-hewn steps descend into the Tyropœon, corresponding to the "stairs that go down from the City of David," mentioned in Neh. iii. 15. In order to test the first question it was necessary to examine the top of the rock; in order to test the second, to examine the slope. Along a large part of the line the top of the rock is either exposed or lies very near the surface, hence only a few trenches or tunnels, driven back 10 feet from the top of the rock, were required to exhaust the probabilities. In none of these was

* See p. 326.

the looked-for wall discovered. Between *a* and shaft 1 a modern cemetery prevented any work. Shaft 1 was sunk back from the face of the exposed cliff. Rock was found at 6 feet; here a scarp facing *east* suggested a cistern sunk in the rock in the path of the desired wall. In shaft 2 the rock was found at 5 feet. At shaft 3 the rock was found by merely scraping away the face of the terrace. Between shafts 3 and 4 the rock is exposed. At shaft 5 the top of the rock appeared at a depth of 6 feet. Driving back a tunnel for 10 feet, we found nothing but shallow cuttings. A gallery was driven back towards shaft 4, and at a distance of 16 feet a cistern hewn in the rock, back of the cliff, and vaulted over, occupies the place where a wall should run. Thirty feet further on another cistern occurs.

Between shafts 5 and 6 the top of the rock is exposed in places, and for the rest it was examined by tunnels where cisterns and other such obstacles did not prevent. Near the hut a scarp runs at right angles with the section for some 40 feet, but no signs of a wall having been built against it are visible. Between shafts 6 and 7 the rock is exposed, being mainly scarped for dwellings, as shown by the partitions projecting at right angles for a few inches, where they are broken off, and by the cupboard-like niches. There are also square holes for the insertion of beams, common in all cliff-dwellings, indicating that constructions were set against the scarp. The top of the cliff is usually so near the surface that we sunk only one shaft, No. 7, which showed that a cistern had been hewn directly inside

its outer face. Thus, not only was no wall found, but at least at five points its place is taken up by cisterns.

In order to determine whether rock-hewn steps led down from the hill to the valley, an examination of the slope was necessary. This was carefully made along its whole length from E^3 to F^3. From E^3 to *a* the rock is scarped, but from *a* to *b* the exposed cliff shows no signs of tooling. Between *b* and shaft 4 the rock, in places exposed, and for the rest examined by tunnels, was all seen to be unworked. That the natural cliff continues north is shown in shafts 4 and 5, where it is respectively 25 feet and 21 feet high. At these depths it breaks out level for a few feet, but this may only indicate a ledge in the cliff. A tunnel was driven from shaft 4 to 5. For the first 13 feet the rock is cut for a cistern, which partly projects from the cliff; beyond this for 23 feet the rock is scarped.* At that point it breaks out for 3 feet, and then the natural face continues, back of which is the cistern described before. Beyond shaft 5 the same natural face was traced for 14 feet, when operations were interrupted by three small cisterns, two of them containing water. From the last of these to the hut the rock crops up, but as the top had been recently blasted away, we cut a trench along it deep enough for us to see that it sloped down in a natural condition. Between the hut and the scarped cliff an examination by tunnels showed the rock to be unworked.

* As plaster occurs on the scarp, we may have here another cistern.

In the scarp—plainly cut for dwellings—no signs of steps were found. To recapitulate: Between E^3 and F^3 the greater part of the cliff is quite unworked, and where cuttings occur, these appear clearly to have been made for dwellings or cisterns. The portions of the cliff which are natural, and those which are scarped, are indicated on the section.

Stone Steps.

While no rock-hewn steps were found leading down from the top of the cliff, an interesting discovery was made at E^2, where the road which leads down from Ophel approaches the present dam wall of the Old Pool. Here our attention was called to two paving stones at different levels, which suggested that steps might occur at this point. Setting some men to dig, we found a flight of five stone steps, terminating in a paved platform. The breadth of tread is uniformly 15 inches; the height of the risers is 10 inches. The steps are laid in mortar, are well polished by use, and are dressed with the chisel-pick. This excavation was not undertaken till the day before the expiration of the permit, hence several points were left undecided. The trench down the steps was dug parallel to the scarped cliff, some 18 feet away, but I think it highly probable that they extended to the scarp. Their limit in the other direction was not ascertained, but we may safely assume their breadth to be 18 feet. The platform may be simply a break in the stairway which is pointing in a north-westerly direction to the flight of eight steps we found descending from

the south to the courtyard in front of the original Pool of Siloam.* The ancient approach to the pool from the southern end of Ophel appears thus to have been much the same as the modern one. It is unfortunate that time forbade our pulling up the steps to see whether rock-hewn steps underlie them. They occupy the place where it is reasonable to expect the "stairs that go down from the City of David." According to Nehemiah, in his account of the rebuilding of the walls, the section repaired by Shallun included the Fountain Gate, the wall of the pool, and extended as far as the "stairs," which would naturally be expected at a point near the wall. The excavated steps occur inside the city wall traced by us below the pool, near the corner where it turns up Ophel.

* See p. 158.

CHAPTER V.

THE CHURCH AT THE POOL OF SILOAM.

General features—Details of excavation—Masonry—Mosaic floor—The arcade—The atrium—Difficulties of tunnelling—The choir—Altar stone—Reliquary—Indications of dome—Date of church—The Empress Eudocia—Antoninus Martyr—Restoration—Silence of later writers—Description by Antoninus—Approach to pool from church—Architectural notes by Mr. Dickie—Various mouldings—Note by Mr. Crace.

General Features.

Logically considered, the subject of the church discovered at the Pool of Siloam belongs to the foregoing chapter, but the completeness of the remains entitles it to a separate treatment. The excavation was somewhat complicated, and in order to make the detailed description clearer, we may at first enumerate in brief the various features of the church.

The building (Plate XVIII.) contains no western door, but is approached from the north by a broad flight of steps, leading down through the narthex into an arcade, which is the north aisle of the church. North of the narthex is a small court or atrium.

The church points almost due east, and is divided into a nave (terminating in a stepped apse) and two aisles. The enclosed choir, approached by two steps, is due to an alteration of the original plan. The south aisle extends over the original Pool of Siloam (compare Plate XVI.), having its bearing on the pool arcade, and the stone on which once rested the high altar is immediately above the Siloam tunnel. The west end of the church is built over the stairway leading to the pool.

The inside measurements of the church are as follows: Length, 84 feet; breadth, 51 feet 6 inches; width of nave, 25 feet 10 inches; width of aisles, 10 feet 5 inches; assumed length of atrium, 62 feet; ascertained breadth of atrium, 17 feet 8 inches. The church is remarkably well preserved for a buried building. The flooring was found to be intact, wherever we struck its level, with the exception of a large part of the south aisle and a portion of the west end of the church. In the arcade the west pier stands to its full height, as especially determined, while the tunnel, though in places 7 feet high, did not reveal in most cases how much of the others still remains. The west wall is preserved in places to a height of 6 feet, as is the south-east angle of the chapel. The steps of the apse are largely intact, and the main stairway, in the narthex, seems to be in excellent preservation.

From a study of the plan, the reader will naturally suppose that, had he been on the spot when it was made, he could have seen the whole form of the church at a glance, and that by walking about he

could have studied the details in the open air. The case, however, was very different. Expecting to see a church, he would have found only a cauliflower field. When we completed our work, the whole floor, with the exception of the south aisle, where the soil was slight, was still buried under a mass of débris, varying in height from 12 feet above the atrium, to 22 feet above the north aisle and the nave. Part of the south aisle was seen by merely scraping away the soil, but otherwise the recovery of the church is due to a system of tunnels, the added length of which came to more than 500 feet. As the length of the church and its appendages is only 115 feet, and the breadth 100 feet, how completely honeycombed the excavated area must have been will appear at once. How ticklish some of the tunnelling was will appear in the course of my description of the excavation.

Details of Excavation.

The discovery was made by accident, and illustrates a frequent experience of the excavator, who, in searching for one thing, often finds another. When pushing east from the scarp along the top step of the great stairway leading to the pool, in order to ascertain its breadth at that point, we found, only 7 feet from the scarp, a wall 4 feet 4 inches thick, running not quite parallel to the scarp. This wall was clearly later than the steps, as these were broken off irregularly to give place to it. (In digging in the south aisle we found a continuation of the steps buried beneath the level of its flooring.)

Masonry.

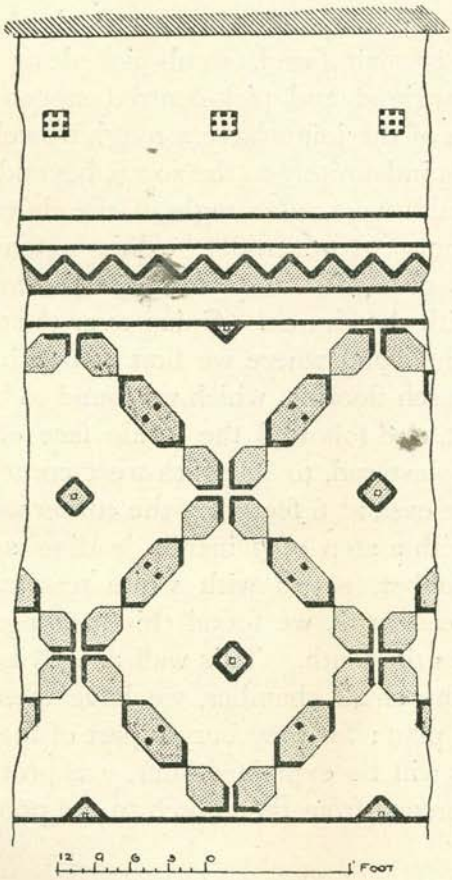
On the outside, this wall consists of well-squared, well-set stones, in courses averaging 21 inches high, set on large foundation-work, rudely laid. The dressing is plain-faced, comb-picked or chiselled; a few margined and pick-centred stones are seen. The faces of the joints have a rough trowel pointing. It extends indefinitely to the south, beyond the place for the south-west outer angle of the church, though the masonry grows ruder. This extension may represent part of a conventual establishment connected with the church. Going over the top of this wall, at the point where we first struck it, we sank to the church flooring, which we found to be of stone pavement, and followed the inside face of the wall, which is plastered, to its south-west corner. Turning to the east, at 6 feet from the corner we came on a door, with a step of 7 inches, leading south to a small chamber, paved with white tesseræ. Going over its east wall, we found this running for some distance to the south. This wall, as well as the south wall of the small chamber, we have merely dotted in on the plan; for they bury a part of the stairway, which, as will be explained later, was probably used as an approach from the church to the pool.

Mosaic Floor.

Returning to the point where the church pavement had first been struck, we pushed north to the internal north-west angle of the building, but at a distance of 15 feet from the corner the stone flagging

gave place to a patterned mosaic. It is curious that there is no corresponding bit of mosaic in the south-

West Wall.



MOSAIC AT NORTH-WEST ANGLE OF CHURCH.

Colours: Black and red on white ground.

west angle. The west wall was thus traced from corner to corner on its inside, but no door was found

in it. This is explained by the rapid rise of the rock to the west. This lack of a doorway also helps the view that a wall ran along the top of the scarp a few feet to the west. In any case, the main north entrance actually found would have been more convenient for those approaching from the city.

In the meantime, striking in at the right spot, we had found the exterior north-west corner of the building and a pavement extending northwards from the wall, at a level some 10 feet higher than the floor of the church. Pushing eastwards from the corner, at 19 feet we came upon a wall running north from the wall that we were tracing. This proved to be the wall of the narthex, for, pushing over its top, and finding no pavement at the same level on the other side, we sank a shaft from the tunnel, and came upon the steps leading down to the north aisle, finding that the wall we had been tracing apparently terminated in a pier. This pier still stands to its full height, and fortunately the cornice is preserved (see Plate XIX.). The north aisle was found to have a mosaic flooring at precisely the same level with the pavement and mosaic forming the flooring of the west end of the church. The mosaic patterns are, however, dissimilar. Seven feet east of the pier just mentioned we came upon an isolated pier, about square, set back 1½ inches from the lowest step. Its original south face was 2 feet 6 inches broad, but it had been strengthened by an additional pier 30 inches broad. The two periods are clearly shown by the straight joint between them, and by the fact that, whereas the tread of the fourth step

from the bottom is broadened to join the back of the original pier, such is not the case with the addition (see plan). We then pushed a tunnel eastwards on the mosaic flooring, keeping in view the two lowest steps, and 7 feet 4 inches from the first isolated pier we came upon a second, consisting of a monolith to the height seen, which was 40 inches. At a distance of 7 feet 2 inches from this another was found. By this time it was clear that we were working along an arcade, and the discovery of three more piers confirmed the idea. A little beyond the last of these the border of the mosaic turned south, and we soon found the corner pier and the end of the steps. Turning east, we followed along a step (7 inches high) till we came upon the other corner pier, and a stone step, 3 inches high, running south, dividing the nave from the arcaded aisle. The northern step leads to a chapel railed off in a manner to be described elsewhere. The floor of the chapel is of stone flagging.

The Arcade.

The length of the arcade is 64 feet. A glance at section C—D will show how rough the construction is. The intercolumnar spacing is irregular, with an extreme variation of $3\frac{1}{2}$ inches, and in the breadths of the piers there is a maximum variation of 5 inches. These are built of stones set in lime roughly dressed with the comb-pick, except the monolith, which is chisel-picked. From the irregularity of the courses, one would gather that they had been plastered like the rest of the church. The two bottom steps lead-

ing down to the arcade were traced along its whole length. The six lower steps were seen in the shaft, and the six higher ones in a tunnel at another level. Measurements between allow for four more, making sixteen in all. It is not impossible that an extensive excavation might reveal the whole stairway still preserved.

THE ATRIUM.

The pavement of the atrium and the westernmost of its three doors had been seen previously in a shaft which we sank while examining the blockage, but at that time these had no meaning for us. However, when we followed up the steps, crossed the pavement of the narthex, and broke through its wall at the north-west corner, we found ourselves on this same pavement, and were able to see its purpose.

The south wall of the atrium was traced for its entire length, and three blocked-up doorways were found in it. On removing the blockage we observed curious grooves on the outside sills and jambs. The sockets indicate that the doors were double. Opposite the central doorway were found two columns. In the joint between the shaft and the base is a heavy lead bedding, the shaft being merely set on the bed, without joggles or other fixing. The entire shaft of one is still standing, its top being 7 feet 9 inches above the pavement, and only 5 feet under the surface. At the east of the atrium were found offsets from the door-piers, 20 inches high, which were evidently used as benches. Against the west pier of the central doorway we have dotted in on the plan another bench or seat, as a rough portion in

the otherwise smooth masonry (here ruined down to one course) corresponds exactly in position to the bench against the east pier, which has also rough masonry behind it. In the east wall several courses are still standing. These continue west in the north wall for about 4 feet, where it is ruined down to the bed of the first course above the pavement. This low course continues to the point indicated on the plan, where it is ruined completely, though the pavement continues. Ten feet beyond, in the same line, is a rough wall, evidently of the period of the filling in of the doorways. No sign of the doorway which must have existed in the line of the north wall remains, though careful search was made. No signs of the atrium west wall were found. On the plan its place may be seen to be occupied by a part of the blockage, described on p. 148. This is ruined down below the supposed level of the atrium west wall which we have dotted in, but another part of the same blockage still exists at a higher level than that of the pavement to the west of the narthex, which belongs to the general church system; hence the blockage appears to represent a later period. We have seen on p. 151 how this same blockage has also obliterated all signs of approach to the great stairway.

Difficulties of Tunnelling.

The excavation of the rest of the church was a somewhat anxious affair, as the architectural features of two periods had to be sought for by tunnelling in a somewhat limited area. The fear was that by

following a false clue we might render it impossible to tunnel in the vicinity. As it was, we were obliged to fill up some places immediately after the remains were measured, so that we could go on with safety. We have mentioned the stone step (29 inches broad and 3 inches high) dividing the north aisle from the nave. This was traced west in a tunnel parallel to that which had revealed the piers of the arcade, and separated from the latter by a pier of earth only 5 feet thick. Fortunately, the soil was very firm, and we dispensed with frames. After pushing 62 feet, we were obliged to close the tunnel, though the step was still going on, and the scale pattern of the aisle mosaic remained unchanged. In our work at the west end of the church, however, we proved that the step does not extend to the west wall of the church, and the mosaic at the north-west angle is of an entirely different pattern. I am sorry that these discrepancies were not explained, but at first we had expected to recover only the main outlines of the church, and it was not till the excavations were finished that we were aware how completely the remains fitted together to form a coherent plan. Certain details were, however, wanting; some of these could no longer be supplied, as we had been forced to close up certain tunnels as the work proceeded, and others could be no longer sought for owing to the approach of winter. Further excavation at the west end of the church was made impossible by the rains, as it was under an open drain down which a torrent of water poured, rendering further tunnelling unsafe.

The corresponding step dividing the nave from the south aisle was also found, but it was traced west no further than the other. The south wall of the church is entirely destroyed except at the south-west corner, but bits of the mosaic of the south aisle still remain *in situ*. It shows the scale pattern, similar to that of the nave and of the north aisle, in tesseræ of black, white, and red.

The Choir.

That the choir is a later feature is proved by the fact that its north wall is built *on* the step. Through an opening in the wall two steps lead up from the north aisle. The entrance from the nave is flanked by two column bases having dissimilar mouldings. The floor of the choir is a white marble pavement, partly set in geometrical pattern (Plate XIX.). It is fairly well preserved. Between the two columns is a 3 inch sinking in the choir floor, measuring 3 feet 2 inches by 2 feet 8 inches. Desirous of examining the east and west central axis of the choir, in hopes of finding the position of the high altar, we drove a tunnel east as far as seemed prudent, working from that direction, and then, working back from the tunnel in front of the apse, we made the connection, coming upon a stone slab set in the marble pavement.

Altar Stone.

Before we could safely examine the limits of this, the first tunnel had to be filled up. This stone is 6 feet 3 inches long by 3 feet 2 inches broad, and a

MOSAIC AT NORTH-EAST ANGLE OF NAVE.

¾ inch sinking was found in the angle. It occurs exactly in the position for the high altar, which doubtless once stood upon it. Very faint signs of a colour decoration were found on the plaster of the choir wall.

The subject of the stepped-up apse is discussed by Mr. Dickie in his notes.

Reliquary.

In the angle of the pier north of the apse another interesting discovery was made. At this point the marble flooring was ruined. Let into the angle was found a sunk box, with sides and bottom formed of redstone slabs, varying in thickness from ¾ inch to 3 inches. Its bottom rests on 4 inches of earth, burying the pavement in use before the choir wall was built; hence it belongs to the second period of the church. The internal measurements are 23 inches by 8 inches, the depth being 16 inches. The top is entirely gone, and nothing was found in it. It reminds us of a discovery of a box sunk under the centre of the apse in the church found on the Mount of Olives. The objects found in this latter box are figured on p. 222. This was used, clearly, for a reliquary; accordingly, we may assume that the box found in the Siloam church was used for the same purpose. The difference in the position of the two boxes should be noticed.

Indications of Dome.

Further indication of the second period, represented by the enclosed choir, is given by the bases of four

great piers set on the stone steps separating the nave from the aisles. These piers were evidently meant to carry a dome which superseded the ordinary basilican arcading. This reconstruction may explain the absence of the stone step and the difference of mosaic at the west end, which may have undergone an alteration at the same time. The dwarf wall running between the two northern piers is difficult to explain, unless we regard it as one of the many changes made after the church was abandoned. A wall was found showing the existence of a chamber to the south of the apse; this was once probably connected with the church, but that it was used at a later period is proved by walls butting against it on the inside.

Date of Church.

We may now examine the accounts of the various pilgrims, to see whether these throw any light on the date of the church. It is not mentioned in Eusebius' enumeration of the churches of Constantine at Jerusalem. As the Bordeaux Pilgrim* (333 A.D.) in his description of the Fountain of Siloam mentions the four-sided portico about the pool, but does not allude to the church, it is fair to assume that it had not been built in his day. Eucherius, VII. (440 A.D.),* describes the fountain, but neither the pool nor the church.

Theodosius, p. 11 (530 A.D.),* says: "St. Stephen was stoned outside the Galilæan Gate, and there is his church, which was built by St. Eudocia, the wife

* See "Palestine Pilgrims' Text Translations."

of the Emperor Theodosius. The Pool of Siloam is 100 paces from the place where the Prophet Jeremiah was cast into the pit; the pool is within the wall."

As these two writers do not enter into any description of the pool, their silence in regard to the church is conclusive neither way. Not long after—560 to 570 A.D.—Antoninus Martyr* gives a full description of the church and pool. Arculfus (670 A.D.)* mentions neither. But it was in all probability destroyed some fifty years before his day by the soldiers of Chosroes II., who are known to have ruined many churches. No mention of it is made by the Venerable Bede (died 735).* The church thus appears to have been built between 333 A.D. and 570 A.D. Mr. Dickie's notes show that the architectural features of the earlier period point to the time of the Empress Eudocia, who died in May, 460 A.D.

The Empress Eudocia.

She spent the last ten or eleven years of her life in Jerusalem, where she had been exiled by her weak and jealous husband, the Emperor Theodosius. She employed her time in building numerous churches (notably the Church of St. Stephen, whose restoration has been accomplished by the Dominicans), in erecting an episcopal palace, and establishing asylums for the poor and aged.

Antoninus Martyr.*

Antoninus states that "the fountain of Siloa is now within the walls of the city, because the Empress

* See "Palestine Pilgrims' Text Translations."

Eudocia herself added these walls to the city, and herself built the basilica and tomb of St. Stephen."

Though he does not state who built the church at Siloam, it is reasonable to assume that Eudocia's reason for extending the city walls to include the pool within the city was to protect a church she had built at that point. It may be argued, on the other hand, that, as Antoninus honours the church at Siloam with a longer description than he gives to the Church of St. Stephen, had he known that the former was built by Eudocia he would have mentioned it. However that may be, the church appears to have been built in the middle of the fifth century.

Restoration.

As to its restoration (shown by the introduction of the dome), Dr. Schick makes an ingenious suggestion in the *Quarterly Statement* for April, 1897 (p. 111): "I think that after it had stood for a century Justinian perhaps restored it, making it perhaps also larger, for Procopius (Palestine Pilgrims' Text Society translation of 'Constantine's Buildings,' London, 1886, p. 138 and following), after speaking of the Church of Theotokor, or the buildings on the Haram es Sherif, goes on to say (in Book V., ix.): 'In Jerusalem he (the Emperor) restored the following monasteries: St. Thalelæus, St. Gregorius, and St. Pantelëemon, in the desert of Jordan; the hospice at Jericho; the Church of the Virgin at Jericho' (all these seem to me to be places in the wilderness and in the Jordan plain, Elisha's fountain

not being mentioned. The account now goes to Jerusalem); 'the Church of the Iberians at Jerusalem; the Church of the Lazi in the desert of Jerusalem' (meaning the Church of Lazarus at Bethany); 'the Church of Mary in the Mount of Olives; the Church of the Well of St. Elisæus' (this means certainly the church on the fountain of Siloa, as there is no other church on a fountain or well at the holy city except Siloa. It may be that Procopius did not know any saint with the name of Siloa, and, not knowing the well itself was so called, mentioned a name in some degree similar to Siloa, viz., St. Elisæus);* 'the Church of Siletheus; the Church of the Abbot Romanus.' So I am convinced that Justinian restored, and perhaps also enlarged, the church and monastery at Siloah in the middle of the sixth century, and this was the church seen by Antoninus in about 600 A.D."

Silence of Later Writers.

We have assumed that the church was destroyed by the Persians, and I can find no account of its rebuilding. Bernard the Wise (870 A.D.), Sæwulf (1102–3 A.D.), the Abbot Daniel (1106–7 A.D.), and the tract called the "City of Jerusalem" (1220 A.D.),†

* Dr. Schick appends a somewhat fanciful suggestion which I made to him when he pointed out to me his explanation of the passage above: "Dr. Bliss has suggested that as Elisha cured the spring at Jericho" (2 Kings ii. 19-22), "very likely in the early Christian time he was looked upon as the saint and protector of the Spring of Siloah, and so his name, Elisæus, applied to the church erected over it."

† See "Palestine Pilgrims' Text Translations."

merely refer in general to the pool. Joannes Phocas, XVI., p. 23 (1185 A.D.), says, "The spring itself is surrounded and adorned by arches and numerous columns," doubtless referring to the arcade. The bathing-place is referred to by several of the anonymous pilgrims of the eleventh century, by Fetellus (1130 A.D.), Theoderich, III. (1172 A.D.), Jacques de Vitry, LXIII. (1180 A.D.), Burchard, XII. (1280 A.D.), Marina Sanuto, IX. and X. (1322 A.D.), Ludolph von Suchem, XXXVIII. (1350 A.D.), and John Poloner (1421 A.D.),* while none of these mention the church. The "argument from silence" may fail in an individual case; for example, although the silence of Theodosius (530 A.D.) in regard to the Siloam church is striking when taken in connection with his mention of Eudocia as the builder of St. Stephen, yet we know the former church in all probability existed in his time. But when fifteen writers, extending over a period of over 500 years, mention either the pool or the bathing-place, or both, but make no allusion to the church, their silence is most significant, and leads us to conclude that this had never been rebuilt. In the time of Felix Fabri (1484 A.D.) the place appears to have had very much the same appearance that it would have to-day were the débris cleared away. He says: "The Christians who came after them (the Romans) built them" (the walls which embraced the pool and its neighbourhood) "up again, and devout men built themselves dwellings round about them, and built a sort of monastery

* See "Palestine Pilgrims' Text Translations."

above the fountain, as may be seen this day, for in front of the fountain there is a pool like a bath, and it is set about with walls and vaults like the passages round a cloister, and the arches of the roofs rest upon marble columns. This building is partly in ruins, and the remainder threatens to fall into ruin also. It would be an easy task to restore the ruins of this holy fountain, but no one touches them or puts his hand to them, and so the place grows day by day more ruinous." (Palestine Pilgrim's Text Society translation, vol. i., of Felix Fabri, p. 529).

Description by Antoninus.

Antoninus's description is as follows:* "Cap. XXIV. Exinde venimus ad arcum, ubi antiqua porta fuit civitatis. In ipso loco sunt aque putride, in quas missus est Jeremias propheta. Ab arcu illo descendentes ad fontem Siloam per gradus multos, vidimus basilicam volubilem, subtus de qua surgit Siloe: que habet solia duo ex marmore manu hominis facta: inter solium et solium clausura cancellarum; in uno pro benedictione lavantur viri et in alio mulieres. In quibis aquis multe virtutes ostendentur, imo et leprosi mundantur. Ante atrium est piscina grandis, manu hominis munita, in qua populus lavatur assidue; nam solis certis horis fons ipse irrigat aquas multas, que descendunt per vallem Gethsemane, que et Josaphat vocatur, usque ad Jordanem in loco, ubi deficit in mare Salinarum subtus Sodomam et Gomorrham."

* Edition of Tobler and Molinier, Geneva, 1879. Published by *La Société de l'Orient Latin*. *Cf.* "Palestine Pilgrims' Text Translations."

The translation is as follows: "Thence we came to an arch where there was an ancient gate of the town. In that place was the dirty water into which the prophet Jeremiah was thrown. Descending from that arch by many steps to the fountain of Siloam, we saw the vaulted basilica, from under which rises Siloam, which has two baths, made by the hands of man out of marble; between bath and bath runs a partition; in the one men, in the other women, bathe for a blessing. Many virtues are found in these waters, and even lepers are cleansed. Before the atrium is a large pool made by the hands of man, in which the (common) people bathe assiduously, for only at certain hours does the fountain pour forth much water, which runs down through the valley of Gethsemane, which is also called Josaphat, as far as the Jordan, (entering the latter) at the place where it runs into the Dead Sea, below Sodom and Gomorrha."

A study of the text shows a correspondence between the church we have discovered and the description of Antoninus. "*Thence we came to an arch where there was an ancient gate of the city.*" In Cap. XXIII. our pilgrim has been describing the Church of St. Mary within the old Temple area. This *gate* is probably shown in the Madeba mosaic at a point near the Temple.* "*Descending from that arch by many steps to the fountain of Siloam.*" We have described the paved street which we found in the Tyropœon Valley. For a long part of its course it is stepped down at intervals of about

* See p. 309.

16 feet, and thus has "many steps," as shown in the section on Plate XV. Under the street is a drain: these constructions may be identical with those referred to by Antoninus in Cap. XXIII., where he says: "In front of the ruins of the Temple of Solomon, under the street, water runs down to the fountain of Siloam." In this case the term "fountain of Siloam" would be used generally for the vicinity, and the "water" refer to the drain terminating at the gate. We have shown that the church is built over the stairway with which the branch of the street leading to the pool terminates. A new descent may have been formed from the fork of the road to the atrium of the church.

"*We saw the vaulted* (*volubilem*) *basilica.*" Many conjectures have been given as to the meaning of the word *volubilis.* It appears to mean here *arched, vaulted,* and may refer to the dome added by Justinian. (See Du Cange, *sub voce* "Monubilis," where he quotes Salmasius in "Itineraris Burdigal," who suggests the reading *volubilis,* that is, *arched, vaulted;* in Byzantine Greek, εἰλῆματικός.) I prefer this to the emendation *notabilem.* "*From under which rises Siloam.*" Antoninus shares the ignorance of the early pilgrims as to the existence of the aqueduct connecting the pool with the Virgin's Fountain, and regards the end of the tunnel as the source of the waters. As the south aisle of the church is built over the pool arcade, he would naturally describe the fountain as having its source beneath the church; "*which has two baths,*" the relative refers to *Siloam,* which is thus used to describe both

fountain and pool. The use of two dependent relatives is awkward, but the excavations bear out the word for word translation. The plan will show that no signs of baths were found within the church itself, and its height above the pool of almost 27 feet makes such an arrangement quite impracticable. We would naturally expect to find the baths in the pool, and such has been the case. The portico we have found about the pool is an ordinary Roman bath arrangement, though its inclusion in the limits of the bath itself is unusual. The excavations were not carried on sufficiently to reveal the division between the men's and women's apartments. The hard and well-polished *mezzeh* stone of the division wall bounding the channel might well be described as marble.

"*Before the atrium is a large pool,*" etc. The atrium of the church that we have discovered is to the north, and its floor is 10 feet higher than the level of the church itself. The space before it (*i.e.*, to the north) is quite unsuited, both by position and level, for a bath. Antoninus, we have assumed, has just been speaking of baths within the pool. He then refers to "the atrium." If we assume that he means an atrium of the pool, his meaning becomes clear. For south of the pool we have an extensive court, with steps leading down to it from the south, and with indications of a colonnade.* Assuming this

* The wall and base of column (indicated by hatched lines) to the south of the pool, seen on Plate XVI., are later than the rest of the work (see p. 158), and may represent a reconstruction at the time of Eudocia.

court to be the atrium he refers to, the pool where the common people bathed is to be looked for to the south. Well, immediately to the south is the great "Old Pool," the dam wall of which is still standing, while the scarp we have followed at its western side was certainly "made by the hands of man."

Approach to Pool from Church.

The question now arises: How was the pool approached from the church? As the church extends over the pool, its flooring being 26 feet 7 inches higher than the pool pavement, the descent must have been along either the east or west side of the pool, giving a direct approach from the south. A study of the relative positions and levels of the church, the great stair, and the pool on the plan and section G H,* suggests an answer to the question. The upper part of the stairway was destroyed on the east when the church was built, as the whole floor of the nave is lower than the level of the steps at this point. When we reach, however, the place for the now destroyed south wall of the south aisle, a broad step of the stairway below this point is 3 feet below the level of the mosaic, still *in situ*, and four steps with narrow treads could easily have led from an opening in the aisle, near the south-west corner of the church down on to this broad step, and from that point the original stairway could have been utilized as an approach to the pool. As this stairway is to this day in such excellent preservation, and as it must have been seen in the course of the

* Plate XVI.

construction of the church, it seems most reasonable to suppose that advantage would have been taken of it by the builders of a church, whose very reason for existence was the sacred Pool of Siloam. The present remains furnish at first sight an objection to this theory. In order to entertain it, we must assume that the small chamber with white mosaic flooring belongs to a later period (see p. 181), as it stands in the way of an access to the stairway. Accordingly, its walls have been simply dotted in. That parts of the church were used at a later period for some other purposes seems to be indicated by the blocking up of the doors of the atrium, by the rough wall built at its north, and by the chambers built against the wall to the south of the apse. This blocking up of the atrium would leave no approach to the church, as such, for there is no door in the west wall. Hence this small mosaic chamber may belong to the later period, together with the extension of the west wall towards the south in a rougher style of building. If we reject this theory, the only alternative is that the pool was approached by a stairway from the south-east of the church. But why build a stairway to the east of the pool when so fine an approach was known to exist to the west?

Architectural Notes by Mr. Dickie.

The following valuable architectural notes have been drawn up by Mr. Dickie:

"Those interested in the history and development of early Christian church planning will find this example to be worthy of special study. Early archi-

tects seem to have been so generally favoured with a comparatively 'free hand' in their work, that it is of rare occurrence to find their ingenuity taxed to surmount the many difficulties involved in dealing with a contracted site. Here we have a site bounded on the south by the Pool of Siloam, on the west by a scarp and wall, on the north by a rapidly rising surface, and on the east by the position of the conduit which conveyed the water to the pool.

"The then existing north wall and arcade of the pool supplied a ready bearing for the south nave, arcade, and south wall of the church, the desire evidently being to place as much of it as possible over the pool. As the healing waters of the pool were the sacred element in connection with this church, the high altar—which in usual cases was placed over the remains of the departed saint to whom the church was dedicated—in this instance stood over the point from which the holy waters flowed unpolluted into the open pool. Thus, the eastern limit of the church was defined, and this so awkwardly that the scarp and wall to the west completely shut off the western access, the necessity for including the steps in order to reach them from the church—as the only available descent to the pool—forcing the architect to draw the west wall to within a few feet of the scarp. Consequently, the only practicable point of access was from the north, and although the rapid rise of the ground rendered this difficult, necessity demanded it, hence the unique arrangement of the church accessories, which were so essentially a part of the design. An enclosure

resembling an atrium was placed at the extreme north, the entrances to which have, however, not been recovered. Against the piers between the three doors in the south wall, low stone-built benches occur, which were in all probability used as seats for those whose initiation had been incomplete, and who were consequently prohibited from entering further into the sacred precincts. In front of the middle door to the narthex are two pillars, the remains of some central feature added to give prominence to this entrance. The compartment marked 'Narthex' on plan might in this instance more properly be called an inner porch introduced to meet the exigencies of the rapidly falling ground to the south, more for the purpose of a staircase than for any other motive. The stairway, which extends almost the whole length of the church, descends to the north aisle through an arcade of seven arches carried on square piers, quite a unique arrangement. A glance at the plan will show that the original internal form of the church has been destroyed by a later alteration, the parts of which are shown by 'hatching,' in distinction from the blackened parts. The slightly raised step on a stone foundation, seen for the whole length of the arcade, and continuing unbroken under the later walls and piers, is satisfactory indication of the original nave (terminating in a stepped apse) and two aisles, and although the later alteration has removed all traces of the nave arcade, the columns must have rested on this foundation. Thus, in the stepped apse (now in the east end), the atrium, and the narthex, all the characteristic features

of the early Christian adaptation of the basilican plan are retained in a more or less modified form. The history of the stepped apse illustrates an interesting instance of an adaptation—to an early Christian form of service—evolved from pagan sources. When —under Constantine—Christians were free to worship openly, the great basilicas of the Romans were at once seized upon as the most suitable buildings in which to worship, and were accordingly taken as the type of the earliest Christian church. The apse of the Roman basilica was used as a tribunal, and the seats arranged in tiers around the semicircle, the presiding judge having his seat in the centre at a higher elevation than the side-seats, which were occupied by the rest of the tribune. This arrangement was particularly suitable for the Christian form of service of the time, and was consequently adopted, the seat of the presiding judge becoming the throne of the bishop, and the seats of the minor judges becoming those of the minor clergy. The altar, which in Roman times was placed in front of the chief judge and was used for taking the oath, retained its position in the Christian Church in front of the bishop. In this church, however, the steps of the apse are so exceedingly narrow and low (10 inch risers and 10 inch treads) that it is doubtful whether they were ever used as seats,* and are suspiciously

* "In regard to the steps or small stone benches going round the apse of the ancient church, I wish to remark that such were also found in other churches, and, above all, in the Church of the Holy Sepulchre itself, where there are four such steps, besides those in the thickness of the wall."—Dr. Schick, *Quarterly Statement*, April, 1897, p. 113.

suggestive of the architectural retention of a feature the original meaning of which had either been forgotten or ignored.

"Unfortunately, the bases of the nave arcade columns have all been removed, and their positions so completely lost that it is impossible to give the exact reconstruction; but there is little doubt that they took the form of the ordinary basilican arcading. However, considering the unusual peculiarities of the general planning, and knowing that the raised bearing of the colonnade did not butt against the west wall, it is possible that the aisle may have continued round the west end, the absence of an entrance in the west wall allowing of, and in fact suggesting, such an arrangement. The interior western termination of both periods can only, however, be conjectured, as the excavation of that part has disclosed no clue.

"I now come to the later alteration—viz., the choir and the four great piers in the nave. The fact that a lower and earlier floor of the choir exists, and that the step and pavement extend under the walls and piers, is sufficient proof that these latter constructions have been set on the original floor at a later date. Besides, this arrangement is entirely out of date with the basilican plan, and plainly shows a later feature introduced incongruously into a distinct type of earlier church. The large proportion of the piers (4 feet 3 inches square), the width of the intercolumnar spaces (20 feet), and the position of the piers in the angles of a perfect square, make it quite evident that they supported a dome. This

style of dome construction—viz., four piers in the angles of a square supporting four connecting arches, which carry a circular dome with pendentives—dates from the time of Justinian. It is the invention of the Byzantines, and is the leading characteristic of their architecture, and might well have been seen by Antoninus Martyr (560 to 570 A.D.)* when he visited Jerusalem. Structural provision to resist the immense thrust of these large supporting arches can be seen in the enlarged piers at the angles of the choir enclosure, and the later addition to the westernmost isolated pier of the stair arcade. The position of the choir extending well into the nave also indicates a later development.

"North of the apse is a small cell-marked chapel. Its floor is raised 9 inches above the aisle floor, and in the sill is cut a 3 inches wide by 3 inches deep groove, which also continues for 15 inches up the side-piers, and in the south pier a fragment of a polished redstone slab is inserted into the groove. Here were also found the remains of stone standards, one of which was entire and measures $8\frac{1}{2}$ inches square and 3 feet high, having a shallow moulding worked on one face, and in one side a sunk groove similar to that found in the step and piers; the head of this standard is finished by a rudely-worked ball ornament. These apparently are the remains of a low enclosure, railing this cell off from the aisle, the redstone slabs being let into the standards on either side of the central entrance. The quantity of the remains seems to indicate that a coping similar in

* See "Palestine Pilgrims' Text Translations."

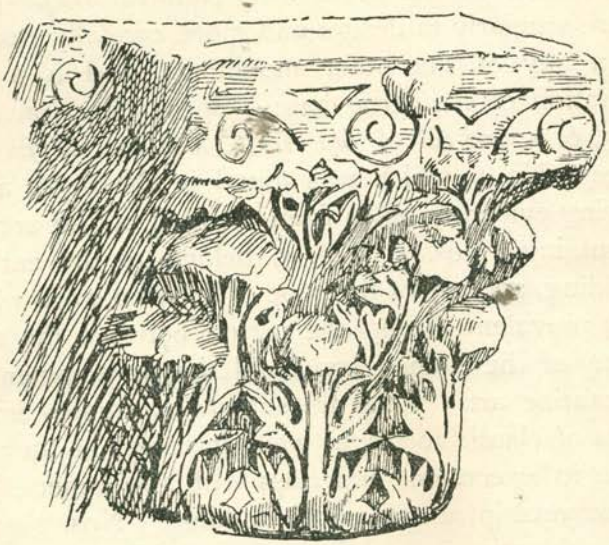
design to the standards ran along the top of the redstone slab.

Various Mouldings.

"On Plate XIX. are drawn the mouldings and other pieces of architectural detail found in the church. No. 1 is a base moulding found among the débris in the north aisle (not *in situ*). It is more scholarly in design and more carefully worked than any of the other mouldings, and is a late imitation of the Attic base. Specimens Nos. 2, 3, 4, 5, 6, 7, are all of one style, and are all *in situ* except No. 6, which was found in the north aisle, having evidently fallen from the arch of the arcade. Mouldings Nos. 4, 5, 6, 7, belong to the earliest building, and are of the type of debased work which was prevalent during the period between the total decay of the Roman style and the development of Byzantine art. They are shallow, unstudied imitations of classic forms, as weak in design as they are rude in execution, and class with the general bad workmanship of the whole building. Nos. 2 and 3 are evidently re-used bases inserted into the later choir.

"The standards No. 9 found within the small side-chapel are designed and worked in harmony with the mouldings, and are part of a feature common to an early Byzantine period. Fragments similar in every way were found in the Church of St. Stephen (erected by Eudocia) and in the excavations at the Pool of Bethesda, near St. Anne's. The wall-head moulding No. 8, which occurs round the portico of

the pool, is of quite a different style to the mouldings of the church, and the masonry is also of a much superior class. This work is of course much earlier than the church, and owes its superiority to its having been executed before the architectural rot had set in, which in later years so rapidly destroyed classic traditions.



CARVED CAPITAL.

"The crosses cut in the stones Nos. 11 and 13, and the fragment of a detached cross, No. 10—evidently part of a finial—are all similar in style and workmanship to the rest of the church details, and are similar to many fragments discovered at St. Stephen's. The marble pavement (No. 14) is a fragment of what at one time covered the whole floor of the choir, which is a later addition to the

church. The capital (see cut on p. 208) is a debased type, a rude imitation of a Corinthian cap.

"Mosaics cover almost the whole floor of the church except in the choir. The design at the north-west angle (see cut, p. 182) is executed in black and red on a white ground (20 cubes = 1 foot), and is a simple arrangement of lozenges with a zig-zag and line border. At the points where the lozenges meet are small crosses, while in the centre of the main lozenges are small lozenge centre-pieces. This is similar in every detail to a part of a mosaic found at St. Stephen's. The work is rude, and the cubes are roughly set and of very irregular size. The design in the south aisle is the scale pattern commonly used in Roman and Byzantine times (see cut, p. 189). It is worked in black, red, and white in the same rough manner as the other example. A similar mosaic to this was discovered by Dr. Bliss on the Mount of Olives (see Plate XX., p. 214); this work, however, is more carefully executed, and the setting and sizing of the cubes are more uniform.

"The masonry of the church is rude, and it, with the evidence of the mouldings, etc., very much favours the theory that Eudocia was the founder of the church. None of the details are of a style that could be classed much earlier or much later than the fifth century."

Note by Mr. Crace.

Appended is a note by Mr. J. D. Crace: "The carefully-drawn sections of mouldings found on the

site of the Siloam church appear to me entirely to corroborate the view that the church in question is of the fifth century. They are, at least, not earlier, for up to the fourth century Roman work retained fairly the classic forms, with their finely graduated effects of light and shade, in its mouldings. Up to that time decadence was chiefly evident in loss of simplicity, in purposeless detail, and in a general lack of artistic method. But during the fourth century all true appreciation of the finer qualities of architecture died out, the mouldings became imperfect representations of traditional features, and any sense of the beauty of their gradations of light and dark seems to have perished. In these Siloam mouldings we recognise a certain attempt at repeating the time-honoured forms, but in a clumsy, cheap manner, with no regard for proportion or effect of light. The cross, too, cut in low relief in a stone slab (No. 11), as well as the detached cross (No. 10), are of a form characteristic of the same epoch. The poor, tamely-cut capital (see sketch, p. 208) would seem to belong to the same period, and all justify the attribution of the work to Eudocia, who died A.D. 460."

CHAPTER VI.

MINOR DISCOVERIES.

Church on Mount of Olives—Dr. Schick's notes—Tombs—Our excavations—Measurements and details—Reliquary—Date of church—Baths near Siloam Gate—Search for arcade—The chambers—Unsuccessful search for Tomb of David—Rock-hewn chambers—Search for theatre—Negative results—The chambers—Tombs in the Valley of Jehoshaphat—Tombs at Sûr Bâhir—Tomb near Tombs of Kings—Frescoes—Latin inscription at Zion Gate—Notes by Canon Dalton—Mosaic north-west of Damascus Gate—Notes by Dr. Murray.

Church on Mount of Olives.

In September, 1894, I was informed that in digging for foundations for new houses on the slope of the Mount of Olives, some 500 feet to the south of the Russian Tower, the owners of the land had discovered a mosaic inscription in Greek. Accordingly, I made a visit to the place, and secured a photograph, which is here reproduced. It was clear to me that the room, of which the mosaic formed the floor, was a mortuary chamber, but I did not at the time take particular note of the other remains. These were examined by Dr. Schick, and described

GREEK MOSAIC INSCRIPTION FROM MOUNT OF OLIVES.

ΥΠΕΡ ΑΝΑΠΑΥΣΕΩΣ ΕΥΣΕΒΙΟΥ ΠΡΕΣΒΥΤ
ΘΕΟΔΟΣΙΟΥ ΔΙΑΚ : ΕΥΓΕΝΙΟΥ ΕΛΠΙΔΙΟΥ
ΕΥΦΡΑΤΑ ΑΓΑΘΟΝΙΚΟΥ ΤΩΝ
ΜΟΝΑΖΟΝΤΩΝ.

Ὑπὲρ ἀναπαύσεως Εὐσεβίου πρεσβυτ(έρου)
Θεοδοσίου διακ(όνου) Εὐγενίου, Ἐλπιδίου,
Εὐφράτα, Ἀγαθονίκου τῶν
Μοναζόντων.

"For the repose of the Presbyter Eusebius, the Deacon Theodosius, and the Anchorites Eugenius, Elpidius, Euphratas, Agathonicus."

by him in the *Quarterly Statement* for January, 1895, pp. 32-36.

Dr. Schick's Notes.

In December of the same year, at the request of H. E. Hamdy Bey, Director-General of the Imperial Museum at Constantinople, I superintended for five or six days a small excavation at the place. The work might well be called the cream of excavating. Usually, before anything valuable can be found, the excavator has to accomplish the long and weary task of removing the overlying débris. In this case, almost all this tedious work had been done before by the owners, and it was left to me only to carry out the hints given by what had already been discovered. Comparing Dr. Schick's plan, made in September, with the state of the place as I found it on December 14, I found that a few changes had taken place, as the owners had somewhat increased their excavating, with the result that some new things had been uncovered, and some of the former chambers had been buried again, probably by the newly-removed débris. I can make this clearer by comparing my plan* with his. To the north of his chamber, at the west of the "Bîr," or well, he marks a flight of steps; this had been buried again when I made my plan. I also saw no trace of the small pool north of the "Bîr," nor did I observe the large pool to the east of the "Bîr," though I have taken the liberty of adding this to my plan, as well as the "New House," which I did not measure. Further

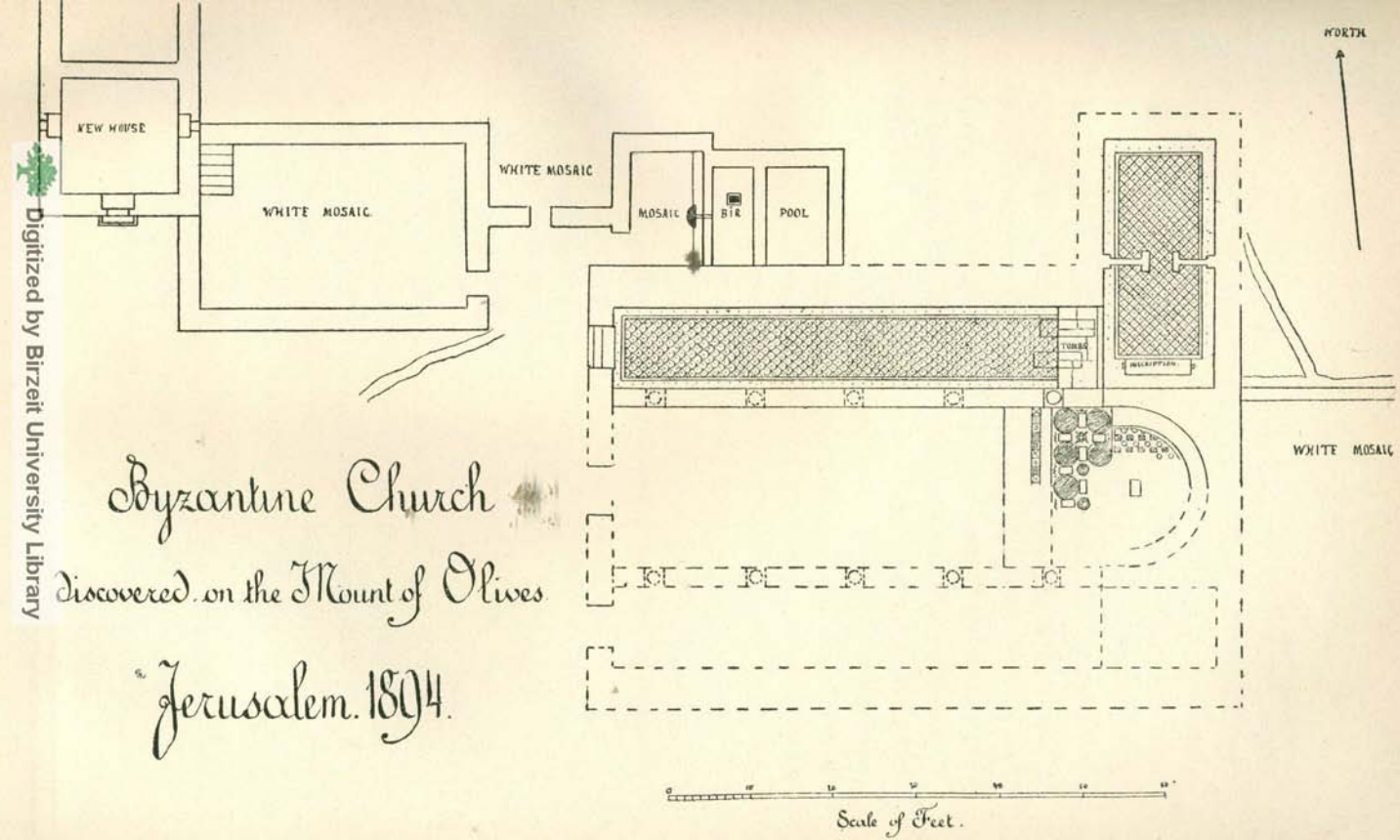
* Plate XX.

excavations had shown that the chamber with the inscription extended further towards the north, the wall, which he naturally took for its north limit, being only a thin partition in the middle of the chamber. To the west of this chamber he marks another mosaic, "No. 2." On my plan this is seen to belong to the north aisle of the church.* When I began work, this had already been uncovered west from what Dr. Schick calls the "broad stone bench" (above the "tombs" in my plan) for a distance of some 45 feet, together with the wall to the north between it and the "Bir" pool, etc., which, according to my measurements, come somewhat north of the place they occupy in Dr. Schick's plan.

Tombs.

Such, then, was the condition of things when I began my work. My primary object was to find the tombs of the men who, according to the inscription, were buried near the spot. At the same time, I determined to follow out the suggestions given by the partly-excavated walls. I had not then seen Dr. Schick on the matter, but it seemed probable to me, as it did to him, that they were to be found under the "broad stone bench." We removed one layer of slabs, only to find another layer below; but these turned out to be covers of two tombs. The one to the south had, I think, been opened before. It was 5 feet 11 inches long, and 2 feet broad. It was dug in the clay, and lined with slabs, which were

* This mosaic has the scale pattern.



plastered. The tomb to the north had never been opened. It was of the same width, but longer, being 6 feet 5 inches. In the south-west corner was a vase of glass, slightly broken at the top, owing, probably, to the falling of the plaster. Remains of two skeletons were found. These were very much decayed, but two spinal vertebræ were found, and portions of the finger-bones, etc. The heads were evidently to the west. From the narrowness of the tomb, it looks as if the bodies had been first buried elsewhere and removed here as skeletons. The proprietors told us that other tombs had been found under what would have been the south aisle of the church.

Our Excavations.

On the morning that I began work, however, it had not been guessed, either by others or myself, that we were on the site of a large church. The place was puzzling. The inscription suggested a mortuary chapel, but why should it face to the south? But before noon a meaning for the whole thing flashed upon me, and it turned out, with a few modifications, to be the true meaning. I based my plan of search for this church on four facts: (1) The chamber with the inscription; (2) the long mosaic to the west of it, with its thick wall to the north; (3) the base of the column, still *in situ*, with two similar bases found lying near, but not *in situ*; and (4) the indications, which are described by Dr. Schick, of a different sort of pavement, in coloured marbles, to the south of the column-base. With

my mind's eye I saw the inscription chamber as the north transept, the long mosaic as the north aisle, the base of the column as one of a series dividing aisle and nave, and the marble pavement, which was 1 foot higher than the aisle mosaic, as the floor of the chancel.

With this plan in view, I had now definite spots to place my diggers. First we found the end of the long mosaic, with the door in the west wall, with steps leading down into the aisle, and, curiously enough, a tomb just outside the door. We then found a step 2 feet 3 inches wide between aisle and the probable nave, upon which the column base rested, and inferred the other columns. In trenching for the apse we found the east wall of the church, and soon the foundation-stones of the north part of the apse appeared. We also cleared the marble pavement, and found that the pattern followed the circular line of the apse. We thus recovered the central, east and west axis of the church; but I was anxious to recover the south wall, for, though the plan of the church was now clear, I wished for the satisfaction of seeing all the walls that were left. The church, however, was badly situated for the preservation of its south part. Built on the side of the hill, the débris in which it was buried formed a slope above it. Above the north end of the inscription chamber the débris must be over 15 feet deep, while over the floor of the nave it is only 9 feet, and over the place for the south aisle it is barely 2 feet. In fact, the Bethany road probably once ran through the south aisle

itself. Moreover, I think it possible that, if any indications here remained, they were unwittingly destroyed by the previous excavations. However that may be, our trenches failed to reveal any traces of the south part of the church. In my plan the unbroken lines indicate the parts actually seen, and the dotted lines the parts inferred.

Measurements and Details.

I shall now give details of the church. Its inside length, west and east, measured along the aisle and inscription chamber from west wall to east wall, is 72 feet 4½ inches. The rectangular distance from the north wall to the central east and west axis, as determined by the apse and marble pattern, is 21 feet 7 inches, giving 43 feet 2 inches as the whole width. The aisles are 9 feet 10 inches broad, the steps between the aisles 2 feet 3 inches, leaving 19 feet 5 inches as the width of the nave. The east and west walls are only 3 feet thick, but the north wall appears to be thicker, though this was difficult to determine, owing to the chambers built against it. The walls appeared to me to be of very rude construction, much mud and mortar having been used with the stones, and the whole plastered over. I was struck on seeing similar walls around the Byzantine mosaic near the Damascus Gate by the fact that such a beautiful piece of work should be enclosed by so rude walls. At the Mount of Olives I felt the same wonder.

In the inscription chamber the thin partition is built over the patterned mosaic. The thickness,

which I have exaggerated on my plan, is in reality only 4 inches. It may never have reached to the roof. It was apparently once faced with marble slabs. A similar thin partition also separated this chamber from the north aisle. This was probably the sacristy of the church. My reason for not inferring a chamber of equal depth at the south is found in the slope of the hill, which does not allow space for it. As said above, I first supposed this to be a transept, but my finding the east wall and the apse so far in disproved the idea.

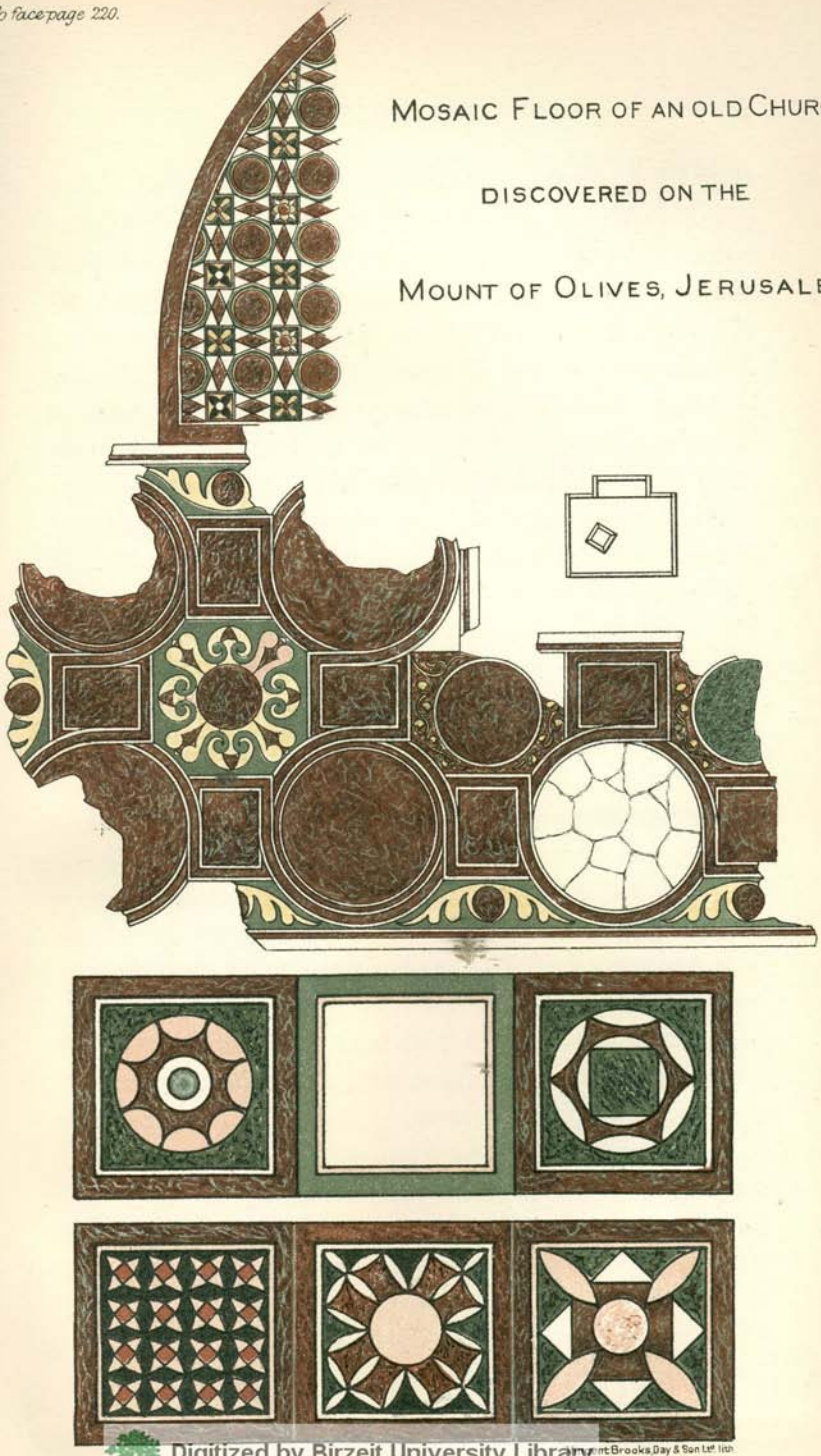
The mosaic of the north aisle has the scale pattern within a border. Like the mosaic of the last-mentioned chamber, it is made of small cubes of stone—red, black, and white. It extends for 2 feet 3 inches under the "stone bench." The tombs may be seen to extend partly under the mosaic. Owing to the great amount of accumulation above them, these mosaics have been perfectly preserved.

The step between aisle and nave is also completely *in situ*. The proprietors had excavated most of the aisle, but left the earth lying above the nave, as a valuable olive-tree stands there. I made a cutting to find what the pavement of the nave might be, but at that point it was gone.

The chancel pavement is about 1 foot higher than the aisle, and on a level with the sacristy. The line which I have drawn to indicate the termination of the elevated chancel, about halfway between the two pillars, was suggested by the remains of a step. This pavement was laid in marble of red, yellow,

To face page 220.

Mosaic Floor of an old Church discovered on the Mount of Olives, Jerusalem.



green, and white. A facsimile in colours of all that remained was measured and drawn by Mr. Sandel. A matrix of potsherds had been laid on the native clay, and the pavement placed on that. The cleaning of the pavement was a delicate operation, as the pieces were very loose, many of them missing, and it was necessary to employ much care lest the pattern be lost. Part of it I cleaned with my small penknife. From the coloured drawing, it will be seen that the central large circle in the second line is filled in irregularly with bits of white marble. Mr. Sandel suggested that there might have been in this circle some picture or Christian symbol destroyed by iconoclasts, who then rudely filled up the place.

Reliquary.

Just about in the centre of the apse circle we made a most interesting discovery. On my plan it it represented by a rectangle. It was a cutting in the clay, lined with marble slabs, the slab to the east having an opening, against which another slab rested, forming a sort of door. Its west slab lay on the north and south diameter of the apse circle, and its centre was only 1 inch south of the east and west diameter of the circle. Hence it occupies a position under the place of the high altar. It was covered with slabs of limestone ; in other words, it appeared as a sunken marble box, with a limestone covering. The inside measurements of the box were 1 foot 2·5 inches east and west, 1 foot 8·75 inches north and south, and 1 foot 0·75 inches deep. Part of its

interior was occupied by a square stone 3·75 inches high. The other part was raised to the same height by several small slabs. Resting on this tiny plat-

OBJECTS FOUND IN BOX.

form were the two objects which I photographed, placing them on the base of one of the columns which divided aisle and nave. They were not in the

centre, nor placed parallel to the sides of the box. The object to the left is a plain vase or vessel of soft limestone. It has a square top and bottom, with sloping sides. At the top it is 5·8 inches square, at the bottom 5·2; it is 5·2 inches high. The sides are ½ inch thick, and the depth inside is 3·5 inches. It is quite without ornamentation. The other object is difficult to describe, but the best idea can be gathered of it from the photograph. It has a resemblance to a tiny base of a pillar, but I do not think it is that. It is 7·7 inches high, and its base is 4 inches square. It was found placed on its side, with the line of its top parallel to one side of the vase, which it almost touched. The vase was found standing squarely on its base.

The slabs which covered this sunken "box" were found broken in, but I concluded that this was due to the weight of accumulation, and not to violation; for, notwithstanding their unsymmetrical position relative to the "box," the objects had evidently been placed as we found them. Owing to the breaking in of its cover, the "box" was filled with earth, and the vase as well. There was nothing in it besides.

The position of the "box" directly under the place for the high altar marks it as the reliquary of the saint to whom the church was dedicated. The vase may once have contained some small bones, or a clot of blood. The opening at the east end, which has a slab laid against it, is 8·5 inches high, and as the vase is only 5·2 inches high, it is quite possible that there was some means for getting at the open-

ing from the floor of the church, so that on feast-days the precious relic could have been taken out for exhibition to the people. We have noticed a similar box found in the church at Siloam (p. 190).

The proprietors showed me a door-sill, with sockets, holes for bolts, etc., measuring 6 feet 10 inches on the inside, which they said they found *in situ*. The place they pointed out came in the south wall of the church. It may be seen by a look at the plan that we have here a church in the midst of other buildings. The chambers to the north are from $4\frac{1}{2}$ to 6 feet higher in level than the aisle of the church, and the mosaic outside to the east is 5 feet lower than the aisle. I should mention that both the incription chamber and the chamber near the "New House" have circular depressions in the mosaic at one corner, 1 foot 6 inches across, meant to collect the water while the mosaics were being washed. This feature occurs also in the mosaic near the Damascus Gate (see p. 253).

Date of Church.

From the form of the church, the character of the letters in the inscription, the manner of mosaic, and the material of the walls, I conclude that we have here a conventual establishment of early Byzantine times, perhaps the fifth or sixth century. It may be one of the twenty-six churches counted on the Mount of Olives by Theodosius in 530 A.D. Dr. Schick gives good reasons for supposing that the place was ruined and buried at the time of the pilgrimage of Felix Fabri.

Baths near Siloam Gate.

We may now describe the baths discovered south of the Pool of Siloam, and mentioned on p. 136. We showed how, in searching beyond the gate for a final outlet to the drain, we found that the water-worn rock, which formed the floor of the drain (whose walls were ruined at this point), suddenly terminated in a scarp, 8 feet deep, covered with plaster and extending east and west.* It was followed to the east for 15 feet, where it joined a wall, which ran at right angles for 3 feet, and then turned again. We then returned to the point where we had first seen the scarp, and pushed along its face westwards for 55 feet, when we found a corner, the scarp turning to the south ; in this direction we followed it for 20 feet, when the tunnel was abandoned, though the scarp still continued. Thus from the east to the west corner we had been working inside a chamber 70 feet in length. The flooring of this chamber was composed of small white tesseræ, irregular in size and shape, from $\frac{3}{8}$ to $\frac{7}{8}$ inch square. The cement setting was so strong that at first we took the flooring for stone. No pattern was found. As implied before, the north and west walls of this chamber consisted of the living rock to a height of several feet. It is probable that masonry once stood on this scarp, though no signs remained at the point where we saw the top. The rock walls were covered with plaster in coats, the facing coat consisting of lime, hard and well polished.

* Plate XXI.

Search for Arcade.

Work along this tunnel was rendered difficult, as along its whole length the floor was strewn with huge blocks of stone, having faces roughly chisel-picked. On an average they were 4 feet 6 inches long, 2 feet 11 inches broad, and 1 foot 11 inches high. From their position it was clear that they had fallen from some part of the building above. Their character forbade our taking them for wall building stones, so we were driven to regard them as cover-stones of an arcade running around the chamber, as they were also found in the tunnel driven south from the west corner. Accordingly, we searched for the column bases of the arcade, and as the long tunnel was not broad enough to include the line of these, we drove in a tunnel at right angles, but found nothing. Still, this tunnel may have chanced to be in an intercolumnar space. Such an arcade, it will be remembered, we found at the ancient Pool of Siloam.

The Chambers.

Chamber 2 is divided from chamber 1 only by a step 3 inches high. It has a pavement of stones, large, but of irregular size, well squared and jointed, originally dressed with the comb-pick, but now polished by foot-wear. This chamber terminates on the north in an apsidal recess 15 feet in diameter, divided from the main part by a dwarf wall (see section G H), and approached by a step up to the dwarf wall, from which two circular angle steps

descend. A distinct water line observed running along the plaster, which covers the recess wall at a height of 12 inches above its white mosaic flooring, proves it to have been a bath.

This bath is connected with a second one at the north-eastern angle of chamber 2 by a channel penetrating the dwarf wall, and running into this second bath, which is sunk 4 feet 6 inches in the floor, having a ledge between it and the wall, perhaps a seat for the bathers. The length of this bath was not ascertained, but its breadth is 9 feet 6 inches. It also is paved with white tesseræ.

We broke through the east wall of chamber 2, finding its thickness to be 4 feet. All the walls of the building are covered with the same well-polished plaster as is observed on the scarp. In some places it had fallen off, revealing close, well-jointed masonry; the stones have a rough pick-chiselling in the centre, with comb-picked margins, but no bosses. The courses are from 16·5 inches to 24 inches high.

The small chamber 3 is approached from No. 2 by a door 2 feet 11·5 inches wide, the sill of which is 4 feet 6 inches above the pavement of No. 2. No signs of steps were found; the door has a bar-socket. The chamber is 8 feet 5 inches long, and its average width 3 feet 10 inches, as the side-walls are not parallel. The floor is natural rock, rough and uneven, rapidly sloping up from under the sill to the north wall, thus giving a rise of 4 feet in 8 feet 5 inches. At this end of the chamber, 4 feet 9 inches from the top of the rock, there is an open-

ing in the wall, silled by a projecting stone 3 feet by 3 feet 5 inches. This small chamber remains somewhat of a puzzle. The difference in height between the door-sill and the sill of the north opening is too great to permit our assuming a stairway, nor did the rough, sloping floor show any signs that steps had once covered it. The height of the door above the pavement, with no connecting steps, led me to think it might have been simply a closet or store-room, with a window at the north end.

We pushed over the north wall of chamber 3, and went down to the rock again, which continued to slope up, and drove our tunnel along the "rough foundation wall" shown in plan, to the point where it was broken away to give place to the wall coming north from the back of the apsidal recess. The masonry of this wall is of the same character as described above, and it is in line with the wall of exactly similar work running south from the corner of the tower near gate (see General Plan II.), plainly older than the tower, as it was broken away close on to the latter.*

At this point we were evidently outside the bath construction, as shown by the position of the "rough foundation wall." Going over the good wall which runs north from the apsidal recess, we found ourselves in chamber 4, which has plastered walls and natural rock bottom. This may have been a reservoir, though, while working in the baths, no connection between the two was found.

In our work in this interesting building we were

* See p. 96.

disappointed at finding no voussoirs, mouldings, or ornamental work which might give a clue to its date. One of the cover stones found in the long tunnel was polished, and in the corner were scratched three letters, which look like L V D. This, and the tesseræ, point to Roman times. The building is evidently later than the great drain, as proved by a study of the water-worn course down which the drain-water ran (see section E—F). This is not only interrupted by small scarps where stones were quarried, perhaps for this building, but it ends suddenly in a scarp, 8 feet deep, cut to form the base of the wall of the building. It is hardly necessary to remark that a bath is not used as a termination of a drain!

From the above it will be seen that we cleared out only the north part of this large construction. It is difficult to know when and where to stop in excavations, but once we had determined the nature and extent, east and west, of this building which we had come upon so accidentally, I felt that my time and attention should be given exclusively to our main work, namely, the search for the city walls. But not without reluctance. For it would have been interesting to have seen whether larger baths were included in its area, to have settled the question of the arcade, etc. However, the ground slopes down so rapidly to the south, leaving so small an accumulation of débris over the southern part of the building, that I am inclined to think we would have found it pretty well ruined, if we could have traced it at all. The débris over the north-west corner, however,

stands to a height of 55 feet, as seen in section A—B showing that the hill above was occupied for a long time after the ruin of the baths. In excavating the building, the lengths of our shaft and tunnels came to about 240 feet, excluding the water-worn course. The soil was hard black earth, and not a frame was used for shoring up. The work was complicated by the fact that we had to go over several high walls. All has been filled up, and not a superficial trace is left of these interesting remains outside the ancient walls.

Unsuccessful Search for the Tomb of David.

In the *Revue Critique* for October, 1887, M. Clermont Ganneau expounded the theory that the course taken by the Siloam tunnel before it enters the pool was due to the necessity of avoiding the vault which contained the Tomb of David. This was supported by a schematic plan, which marked the spot where he calculated the vault should be. This spot is to the north of the tunnel (at the level 2179′)—that is, inside the concave side of the curve, which, to quote M. Ganneau,* "naturally encloses and partly envelops the obstacle interposed, since it is meant to pass around it." I had not the article by me in Jerusalem, and I was not aware at the

* See the *Athenæum*, September 11, 1897, p. 361. Compare also "Les tombeaux de David et des rois de Juda et le tunnel-aqueduct de Siloé," par M. Clermont-Ganneau, Membre de l'Institut. Extrait des "Comptes Rendus de l'Academie des Inscriptions et Belles Lettres." Paris: Imprimerie Nationale, 1897.

time that the author of this theory had so particularized it as to point out a definite spot. It seemed to me that the general argument would equally well apply to the region to the south of the curve—that is, outside the convex side. Accordingly, as certain practical considerations were more in favour of our working to the south of the curve, I made a clearance to the rock to the east of the pool in the place shown on General Plan II., with the hope of finding a pit approach to the tombs, according to the idea of M. Ganneau, who was the first to suggest that the entrance to the royal vaults was not in the ordinary Jewish form of a door cut in the vertical rock, but by a pit, analogous to the mortuary pits of Phœnicia and Egypt. In reporting that no such entrance was found, I am by no means discrediting M. Ganneau's theory, as I did not search in the spot indicated by him. Indeed, his main thesis of the close connection between the deviation of the tunnel and the position of the Tombs of the Kings, would, in my opinion, not be exhaustively tested until an area had been cleared, six or eight times the size of the area excavated by me, and extending both north and south of the curve.

Rock-hewn Chambers.

Although the main object of our search was not accomplished, yet the excavation was not without results, the most important of which was the discovery of a carnelian seal, with Hebrew inscription, to be described in the next chapter. The clearance

was 44 feet broad, with an average length of 100 feet.* The rock, seen over the whole area, has an average depth of 12 feet from the surface. Almost everywhere it bears the marks of tooling. Many of the cuttings were made simply for quarrying stones, and such are not indicated in the plan. Many rock-cut dwellings and cisterns were found, but parts of even these had been quarried away.

Chamber 1 had been seen by Dr. Guthe in a trench across this field.† It is approached by rock steps from the south. In the south-east corner of its floor is a round hole, 18 inches in diameter and 14 inches deep. On sounding its floor, we found no indication of a cavity below. The east and west sides have been covered with plaster, and slope inwards for 9 feet, where a ledge 8 inches in breadth occurs. Below the ledge the walls curve inwards. Along the ledge there is a single course of masonry, slightly curved, which suggests that the lower part of the chamber had been arched over. The height of the keystone of such an arch above the floor would have been 6 feet 6 inches.

In the south-east angle of chamber 2 is a circular hole similar to that in chamber 1. South of chamber 2 is a cistern, stepped down from the landing, similar to many cisterns found by us on the western hill. These steps are covered with two coats of plaster, the inner composed of lime, chips and ashes, the outer of lime, chips and earth. The broken

* Plate XXII.

† For section of this chamber, called by him a cistern, see his Plate I.

arch shown in section C—D indicates that the cistern had been entirely hewn in the rock. In the north walls of chambers 3 and 4 are niches, the one in the former being 3 feet 9 inches deep. On the scarped sides of chamber 6, and of the cistern to the south of it, run rude masonry walls, probably of later construction. The floor and sides of the cistern are plastered. The descent into most of these chambers must have been by a ladder. It seems probable that they once had rock-cut roofs, since quarried away.

The types of pottery found in the débris above these rock cuttings were chiefly Roman, including tiles and the common ribbed ware. There were two Byzantine lamps, and some bits of Jewish jars occurred.

I also began a clearance to the north of the curve, but owing to the unexpected depth of the soil, and to the expiration of the permit, this had to be abandoned before much progress was made. However, immediately to the north of the house included in the curve (see General Plan II.), in an area measuring, roughly speaking, 80 feet by 40 feet, the rock has been quarried away in modern times. Some soil has since accumulated over the area, but the peasants informed me that nothing had been discovered there resembling a pit entrance to a tomb.

Search for a Theatre.

Some 250 feet south of the Aksa Mosque, and immediately east of the Hakûrat el Khatûniyé, where the city wall turns north to join the Haram

Area, there are six olive-trees arranged roughly in the form of a semicircle. This same rude semicircular form may be observed in the surface contours immediately behind the trees, the ground sloping towards a common centre with a radius which may be roughly taken at 100 feet. As the appearance of the ground suggests that a theatre might be buried beneath the surface, I was instructed to make an excavation at this point.* Accordingly I sank three shafts to the rock, near *c*, *e* and *g* (see Plate XXIII.), with the intention of pushing a tunnel from each one to the central point, *a*, in order to find out the slope of the rock, and especially to see whether it was cut in the form of seats, or had seats built upon it. In the first shaft (see section *a*—*e*), sunk some 20 feet north of *e*, rock was struck at a depth of 4 feet. Between this point and *e* it was found to have the same slope as the surface, and to be, for the most part, in a natural, unworked condition, having the virgin earth clinging to it. At *e* the rock descends in a perpendicular worked scarp, 17 feet 6 inches high. From the face of this scarp we continued our tunnel towards the south. For 19 feet the rock slopes gently, when another small scarp occurs pointing north-west, thus running at right angles with the lofty scarp. From

* Josephus ("Antiquities," XV. viii. 1) describes a theatre built by Herod at Jerusalem. No information is given as to its situation, but in a note on p. 1617 of Smith's "Bible Dictionary" (1893) it is suggested that it may be the same as the hippodrome mentioned in "Wars," II. iii. 1, as being south of the Temple.

the face of this second scarp the rock slopes gently towards *a*, falling only 3 feet in 47 feet. Meanwhile, to save time, we had sunk another shaft at *a*, finding the rock at a depth of 15 feet, and had pushed north to meet the other tunnel. Resting immediately on the rock we found a concrete flooring, some 15 inches thick, extending north for 31 feet, and bounded on the south by a thin wall of masonry, forming an angle at *a*.

In the shaft at *c* rock was struck at a depth of 12 feet. Here was found the corner of a wall running north. This was found to belong to a system of chambers, to be described later, as the main purpose of the shaft was to examine the rock between *c* and *a* (see section *a* to *d*). At the east of the shaft an angle of a scarp was found (see plan), from 5 to 6 feet high. Sinking to the base of this, we pushed along the side that faces north for 23 feet to *b*, where the rock drops abruptly for 8 feet 6 inches, though here it is unworked. As the rock at the base of this drop is only 5 feet higher than the rock at *a*, giving a fall between the two points of only 1 in 10, and as time was very precious, we did not make the connection.

In the shaft at *g* we found rock at a depth of 17 feet. Our intention of pushing a tunnel straight to *a* (along the radius of our supposed theatre) was at first frustrated by a wall so solid that we did not attempt to break through it, but followed along its face to *h*. Here, however, we found this wall butting up against another of equal hardness. Accordingly, we broke through the first wall, which,

notwithstanding its solidity, has no great thickness, and followed the rock, in which cisterns were hewn, to four rock-hewn steps, the lowest of which has the level of the rock at *a* (see section *a* to *g*). This stairway is only 8 feet wide, and the treads vary in breadth, but the rises are all 13 inches. As the plan shows, the descent is towards the north-west. The slight height of the steps, as well as their direction, shows that they had not formed seats for a theatre, as in that case the incline should have been south-west, towards *a*.

Negative Results.

The results of our work along these three radii, *a*—*d*, *a*—*e*, and *a*—*g*, may be summed up as follows: (1) No signs were found of cuttings in the rock corresponding to tiers of seats in a theatre, and the virgin soil clinging to rock from *e*, 20 feet north, shows that the rock here had never thus been cut; (2) no signs were found of foundations of seats built on the rock; (3) though the fall of the rock along the three radii would have rendered the construction of a theatre easy, yet the entire absence of any signs of such a construction makes it appear improbable that a theatre has ever existed here.

The Chambers.

I may now describe the curious dwellings found by following to the north the wall struck at *c*. The entrance to chamber 1 may have been at *c*, the offset in the wall representing the jamb of a door. The

east wall was not seen, and is only dotted in on the plan ; but the chamber could not have been wide, as it is roofed with slabs about a yard broad. Nothing was found on top of the slabs. The west wall is covered with plaster. Signs of mosaic were seen in a narrow channel passing out of the supposed doorway at *c*. Breaking through the north wall (which is not bonded with the west wall, is not plastered, and seems to be of later construction), we found ourselves in chamber 2, which measures only 6 feet 6 inches by 5 feet. The west side consists of a circular archway of masonry, the apex of which is 6 feet 3 inches above the floor, leading into a passage or drain, 3 feet wide, having masonry walls and covered with slabs. This passage we did not explore. The north side of chamber 2 consists of scarped rock, with an opening 2 feet 4 inches wide, having a circular head, the apex being 6 feet from the floor. In chamber 3 the roof and the walls to west and south are all of rock, masonry walls, similar to the south and east walls of chamber 2, forming the east and north sides. In the west side an opening with circular head (whose apex is only 4 feet from the floor) leads into a passage, which we had no time to follow. Passing through an opening in its north wall, we came into chamber 4, the limits of which we did not ascertain. The west side is partly of rock, partly of masonry, with an opening similar to that in chamber 3. The north side consists of a scarp (see Plate XXIII.), which was traced for 38 feet towards the east, beyond which point it seems to run on, being in line with the high scarp at *e*, though

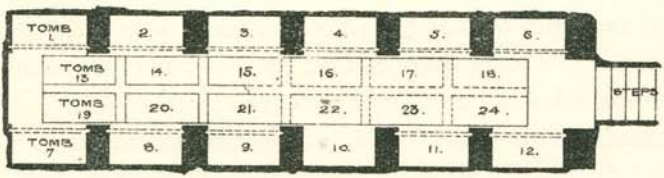
the level of its base is 9 feet higher than that of the latter. In this scarp are niches 5 feet 6 inches wide and 14 inches deep, one of them having a circular head. Beyond the second niche the scarp bends inward, but soon returns to the line by an offset. Plain white mosaic, occurring at two different levels, was observed *in situ* on the rock floor.

From the above description it will be seen that not much can be told as to the use of these chambers. We have evidently three periods: First, the rock-cut chambers, which may originally have served as tombs; second, the plastered wall at *c*; third, the other masonry walls, with the mosaic floorings, the slabs covering chamber 1, and perhaps the passage or drain leading west from chamber 2. The third period appears to be Roman or Byzantine. Our object in examining the top of the slabs over chamber 1 was to ascertain whether any seats were built upon them, the idea being that possibly the chambers might represent dressing-rooms of the theatre. As I have said, nothing was found. The pottery in the débris was all late.

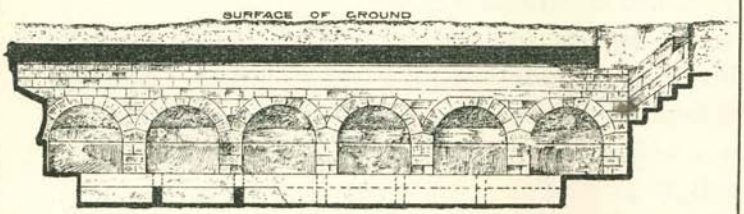
Tombs in the Valley of Jehoshaphat.

At the side of the road leading west from the Tomb of the Virgin, in the Valley of Jehoshaphat, at the point where it turns to the north, Dr. Flinders Petrie observed, in 1890, several irregular rock-hewn steps, pointing about west to the Bab al Asbat, at the north-east angle of the Haram Area. I was instructed to ascertain whether these steps led up the hill. At 39 feet from the steps a trench was dug

TOMBS DISCOVERED
NEAR
SÛR BÂHIR

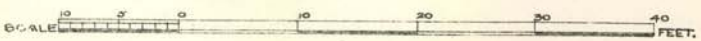


GROUND PLAN



LONGITUDINAL SECTION

CROSS SECTION



F. J. Bliss

A. C. Dickie

across the desired line, the rock being only a foot or two beneath the surface. At 146 feet from the steps, in the same line higher up the slope, rock was found at 10 feet, and tunnels were driven to north and south. In neither case were steps found, but in the second excavation rock-cut tombs were discovered containing bones, glass vases, and Byzantine lamps, similar to types of the fifth and sixth century A.D. We did not think it worth while to clear out the tombs, so no plan could be made.

TOMBS AT SÛR BÂHIR.

In the autumn of 1895 the natives of Sûr Bâhir, (a village situated 2½ miles south of Jerusalem), while digging for broken pottery on the crest of the hill, a mile due east from the village, came upon some tombs. They reported the matter to our Imperial Commissioner, Ibrahim Effendi, who at once visited the place with me. A few days later Mr. Dickie measured the tombs, and wrote the following account:

"A general survey of the hill-top gave me but little light on the position of the tombs, as the entrance had been filled up since Dr. Bliss's visit. Everywhere were signs of a disturbed surface, but in no place could I find any clue to lead me to the object of my visit. At last, after careful examination and a little hand-excavating, in what seemed to me to be the most recently disturbed soil, a welcome voussoir peeped out of the crumbling earth, followed by another of the same. Here I set the men to work, and after an hour's digging I was able to

squeeze myself into the building at the apex of the vault, just where the steps lead down to the cell. The débris had all fallen through this aperture, consequently more than half of the interior was practically empty, and the inside excavation only consisted of minor pickings here and there, to find real bottoms, true corners, thicknesses, etc. (see Plate XXIV.).

"The building is rectangular on plan, measuring 6 feet 1 inch wide by 49 feet 3 inches long, and covered by a semicircular barrel vault, the height from the bottom of floor tombs to apex of vault being 11 feet 11 inches. Six semicircular-arched recesses, 3 feet 3 inches deep, 6 feet 2 inches wide, and 5 feet 3 inches high, on each side form the side-tombs, and the floor is divided into twelve compartments, 6 feet ½ inch long, 2 feet 9½ inches wide, and 2 feet 7 inches high, by dwarf walls, 10 inches thick, thus forming the floor tombs. The entrance at the east end has five steps, which end abruptly at the face of the wall. The masonry of the stair walls is diagonally bedded, parallel to the rake of the steps, the upper course being the springing course of a sloping vault, which must have intersected the main vault at the broken part. At the west end is a small opening (now built up), measuring 3 feet by 12 inches, abutting up to the apex of the vault. The cell is partly cut out of the solid rock, and partly built. In the lower part the rock has been faced up and made good in cement and stones, but in the upper part of the recesses the natural rock projects slightly forward. The masonry is fine

pick-dressed, with chiselled margins well set and close jointed with fine trowel-keyed pointing, courses averaging 15 inches high. The floor tombs must have been covered with stone slabs, although no signs of them now remain. Broken parts show that the fronts of the tombs had been formed by a thin division or slab of very strong concrete, made of lime, pottery, and small stones, 4 inches thick, and 2 feet 6 inches high, bonded into the side-piers at the small checks shown on plan. Stone slabs would seem to one to be the most natural and simple method of construction, but in every tomb where any remains of the fronts existed I observed the same peculiarity, the check heads being in many cases broken off, evidently when the tombs were destroyed. No remains of the covers exist, but it is probable that they were of slabs resting on the concrete wall, and the 4 inch projection at the back of the recess. The bottoms are made up of the same character of concrete as I have already described.

"Not a vestige of the contents of these tombs remains, although it is certain that they were almost all used, from the way in which the edges and checks of the piers have been destroyed and the fronts broken off, as well as from the cement beds and joints, which can be seen on the bearings for the covers. Recess No. 10 appears, for some reason or other, to have been unused, as there are no checks in the piers, and no evidence to show that its original form has been disturbed. The ruthless hand of the robber seems to have confined itself to the tombs and their contents, as all the other parts of the

building are in perfect preservation, and the whole structure looks as fresh and new as the day it was built. Indeed, although it is probable that it has existed since Byzantine times, were it not for the blackened stones above the lamp-rings hanging from the apex of the vault, it would be difficult to believe that one was not measuring up a recently completed building. It is curious that such a building could have remained so complete, with only 3 feet of débris to protect it from the ravages of the Arab.

"A study of the surrounding ground above shows that the tombs may have been under a larger building of some sort, situated within a quadrangle, measuring, roughly speaking, about 70 yards square. At the north-east, just on the verge of the descending rock, can be seen two courses of masonry, which might have been the corner of the enclosure. The east wall is also distinctly traceable for some distance, running exactly at right angles to the tombs. The south and west lines of walls are inferred from the ridges of débris and fallen stones, there being a distinct rise of ground everywhere inside these lines. No hewn stones are seen above the tombs, or to the north of the enclosure. There is a large rock-cut and plastered cistern within the enclosure to the north-east of the tombs, with a Latin cross modelled on the plaster.

"The site is entirely surrounded by deep valleys, except at the south-west, where it is connected by a narrow neck with the adjoining hill. A bright autumn day gave us a splendid view of the surround-

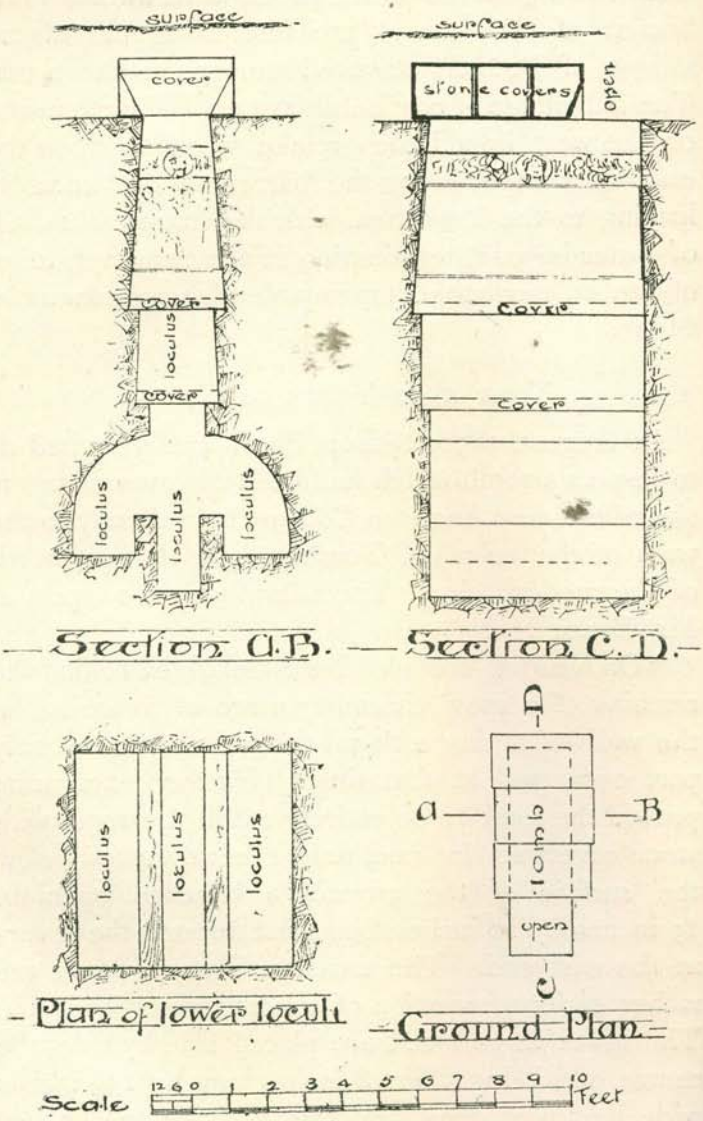
ing country. The Frank mountain loomed and Bethlehem glittered on the south, while the sparkling Mount of Olives and the interesting but dismal village of Bethany attracted the eye to the north. The hill village of Sûr Bâhir, ragged and picturesque on the west, linked the circle of view, which on the east was completed by the barren sandy 'knowes' leading to the Dead Sea, with the intense blue belt of water beyond, terminating in the clear, soft tones of the indescribable, unpaintable blue mountains of Moab."

Tomb near Tombs of Kings.

In August, 1896, Bishop Blyth kindly invited us to inspect a tomb which had been discovered on the site of the new Anglican College, immediately to the west of the so-called Tombs of the Kings, north of the modern city. The following is the report of Mr. Dickie:

"On visiting the spot I was delighted to find the remains of a most charming piece of frescoing, on the walls of a tiny rock-cut cell, this being the only part excavated at that time. Further excavation proved the tomb to be entirely cut in the rock, with stone covers set in lime, only 2 feet 6 inches below the surface of the ground, a bevelled opening, 19 inches by 20 inches, being cut through the covers at the east end. The cross-section A B shows the rather curious formation of a sunk tomb with loculi. The lower three loculi are placed side by side, the centre one being 5 feet 8 inches long by 13¼ inches wide by 2 feet deep, and the two side ones 5 feet

TOMB DISCOVERED NEAR "TOMBS OF THE KINGS."



8 inches long by 20 inches wide by 12 inches deep each, all covered roughly with a thin coat of very hard plaster. The rock above is cut back to form rests for the covers, which also serve as the floor of another loculus immediately above the centre one, measuring 5 feet 9 inches long by 2 feet 3 inches wide by 2 feet 6 inches deep. Above this the rock is again cut back to receive the covers of this upper loculus (which is not plastered), these covers also serving for the floor of the upper cell, which measures 6 feet 1 inch long by 2 feet 6 inches wide at bottom, and diminishes towards the top to 5 feet 6 inches long by 1 foot 8 inches wide; the height from top of floor-rest to soffit of stone covers is 5 feet 3 inches. The north and south sides and the west end of this cell are plastered, and have at one time been entirely covered with fresco, but the east end has been left unfinished, and shows the bare roughly-cut rock. A glance at the sketches will show the scheme of decoration. An irregular band of red colour, from 6 inches to 10 inches deep, extends round the top of the three plastered sides; under this is a decorative frieze 9½ inches deep, separated from the upper and lower panels by bands of dark-red colour ⅞ inch broad. The lower panels are 26 inches high, and extend the whole length of each side, formed by similar bands of red colour; under these the ground colour extends undecorated to the floor.

Frescoes.

"It is unfortunate that the effect of time and exposure has so destroyed the colour that only a

part of the design can be recovered, which, however, is sufficient to give a fair idea of its style and period. On the east end the remains of three erect figures are still quite distinct. The centre male figure is almost entirely obliterated, and its outline can be only very indistinctly traced. To the left is a female figure, the head of which is complete, and the lines of the drapery sufficiently indicate the upright pose. The head of the male figure on the right is almost gone, but the black colour of the hair, part of the beard, and faint indications of the eye and nose, still remain ; the flowing red robe, the position of the right knee, slightly raised, and the faint indication of the uplifted left arm, tell the artist's conception. Two colours (red and black) on a yellow ochre ground have been used in the painting. The faces are outlined in black, and the drapery of the central figure and of the one on the left is in black, while that of the right figure is in red. Only the heads and upper parts of the bodies can be traced, the lower parts and feet being entirely gone. The scene depicted I cannot make out. Its general treatment is bold. The graceful, queenly pose of the half-turned head and shoulders of the female figure, the tasteful arrangement of the hair, and the stern yet sorrowful expression of the eyes, which seem to cast back a semi-scornful glance as she moves slowly away, are rendered with power and feeling. The manly vigour of the male figure on the right is painted with no less power, and the whole piece is drawn with classic truth and force. The south and west sides have also been decorated, but now only

Vincent Brooks, Day, & Son lith.

THE KINGS"

FRESCO ON WEST END

indistinct blotches of colour remain, quite insufficient to define any single detail of the design. The frieze on the three sides consists of a simple, conventional treatment of a female head with an arrangement of pomegranates and leaves on either side. The sketch will show that this face is completely destroyed, and that only a faint outline and the two hanging tresses of hair now remain. I am sorry to say that my carelessness accounts for this, and is an instance of how even the most gentle handling is dangerous in dealing with such frail antiquities. The face when I first saw it was almost complete ; part of the forehead and one eye only were wanting. I unfortunately attempted to finger off some of the dust, with the result that the whole face flaked off and broke into atoms on the floor. Its form and character still remain in my mind, but I dare not attempt a restoration.

"The sketch from the frieze on the south side is the most complete, in fact, the only distinct piece that remains, and is sufficient to show the whole design, which is merely a repetition of this part. The delicate pale green halo which encircles the head combines well with the conventional treatment of the face and hair, and produces a charming play of colour as a centre-piece to the dull gray of the pomegranate leaves, which is only broken by the pink-coloured fruit when approaching the middle feature. The colour effect is agreeable, and the whole composition exceedingly happy. A Greek inscription has been painted over the heads of the figures on the west end, which I have copied as

closely as possible, but on account of chippings, decay, etc., the greater part is undecipherable. The learned Dominican, Père Sejourné, has, however, been able to recover a part of it, and reconstructs the letters ΑΛΓ . . . Α over the head of the female figure into ΑΛΓΕΙΝΑ—'sorrowful.' On the assumption that the fresco illustrates a funeral procession, he suggests that the letters ΙΑ between the second and third figures permit of restoring another word of the same neuter plural termination as, for example, ΑΝΘΡΩΠΕΙΑ—'human.'

"The tomb is evidently a family one of four loculi, and, as far as I can make out, the plan is unusual about Jerusalem.

"The tomb is nearly in the middle of a space surrounded by a wall of masonry 3 feet thick, which seems to be the remains of a building which at one time covered the tomb. It is quite evident that the entrance to the cell was not made from the open air, as the bevelled opening shows no evidence of ever having been covered, and the plaster and decoration continue over the bevelled face of the first cover, as if intended to be visible from an interior. No pottery or other objects were found, and only a very few bones; the whole tomb appears to have been entirely robbed of its contents.

"The three frescoed figures are so exceedingly classic in character that they seem to illustrate some mythological subject, but the rendering of the frieze is more conventional, and lacks this vigorous feeling. In fact, it suggests Christian art as readily as the other inclines towards a pagan origin. The work

TOMB DISCOVERED NEAR "TOMBS OF THE KINGS"

DETAIL OF FRIEZE.

certainly belongs to a period when classic art still flourished in the country, but I will leave someone better acquainted with such antiquities to class it more definitely.

"Another tomb was uncovered 8 feet to the south, only a simple sunk cell, 5 feet 3 inches long by 1 foot 6 inches wide, and in it are two bodies placed side by side, one with the head to the west, and one to the east."

Latin Inscription at Zion Gate.

During a storm in the early winter of 1894, the doors of Bâb Neby Daûd (Zion Gate) were blown down, and my servant observed an inscribed stone, built into the north pier of the gate, which had been concealed for many years by the leaf of the door standing open against it. Fortune is the great discoverer. Every inch of the modern wall had been searched for inscriptions, while here, just behind the door, this stone was waiting for the storm. It kept itself hidden from numberless antiquaries who had passed a couple of feet away, and then revealed itself to a cook returning from market.

The stone, which is some 10 feet above the level of the door-sill, is 2 feet 9 inches long by 1 foot $6\frac{3}{4}$ inches high. The letters of the inscription are arranged in six lines. The letters in the first line are $3\frac{1}{8}$ inches long, those in the second line $2\frac{1}{2}$ inches, those in the third line $2\frac{11}{16}$ inches, those in the fourth line $2\frac{5}{8}$ inches, those in the fifth line $2\frac{1}{2}$ inches, the remains of those in the sixth line (the lower portion of these letters having been

broken off) measure 1½ inches. The stone was partly covered with plaster, but after we had cleaned it we were able to secure an excellent photograph. A scaffolding was erected opposite, and though only half the inscription was in sunlight, by means of a mirror light was reflected on the shady half. Squeezes were also taken.

NOTES BY CANON DALTON.

This inscription, which is either a prayer "for the welfare and victory of Trajan and the Roman people," or, more probably, a thank-offering for the same, has been exhaustively treated in the *Quarterly Statement* for April, 1896, by Canon Dalton and Mr. Ebenezer Davis. The former shows that the inscription was probably not cut earlier than the spring of 115 A.D., nor later than the summer of 117 A.D. The first limit is given by the designation Parthicus, attached to the name Trajan, and the second by the death of the Emperor. It is interesting to note how he came to bear the various names appearing on the inscriptions. The Emperor Nerva, in adopting Trajan in the year 97 A.D., gave him the rank of Cæsar, and the names of Nerva and Germanicus, the latter in honour of his successful campaign on the Rhine frontier. Soon afterwards the title of Imperator was added. Nerva was succeeded by Trajan in January, 98. In 101 Trajan achieved a victory over the Daci, and, assuming the title of Dacicus, entered Rome in triumph in 103. In 105 he conducted a second campaign against the Daci, returning to the capital

a second time in triumph in 106. Leaving Rome for an Eastern campaign in 113, Trajan wintered in Antioch. After subduing Armenia in 114 and

LATIN INSCRIPTION BUILT INTO ZION GATEWAY.

(J)OVI O(PTUMO) M(AXIMO) SARAPIDI
PRO SALUTE ET VICTORIA
IMP(ERATORIS) NERVAE TRAJAN CAESARIS
OPTUMI AUG(USTI) GERMANICI DACICI
PARTHICI ET POPULI ROMANI
VEXILL(ARIUS) LEG. III CYR(ENAICAE) FECIT.

"To Jupiter Sarapis, Best and Greatest, for the safety and the victory of the Emperor Trajan and of the Roman people, a standard-bearer of the Third Legion (Cyrenaica) has made this."

strengthening the Roman dominion between the Euxine and the Caspian, between the Euphrates and the Caucasus, the Senate formally conferred on

him the unique title Optumus, a designation, however, that appears on his coins and medals as early as 103. Very shortly after this he was entitled Parthicus, a title conferred by his soldiers during the next winter after he had crowned his brilliant expedition by entering Babylon and Ctesiphon. In 117 the Emperor fell ill and set off homewards, but only got as far as Selinus in Cilicia, where he died on August 11, 117 A.D. We thus get the two date limits for this inscription, as given above. Though Trajan was designated Parthicus by the Senate in 114, the news could hardly have reached Jerusalem, where the votive tablet was erected, till 115. Canon Dalton adds :

"This is the earliest date it could have been cut. But our vexillary is more likely to have awaited the soldiers' formal ratification of the title to their general before using it in an inscription, and the probabilities would appear to be that the stone was engraved as a votive thank-offering in the early months of 117 A.D."

This date is confirmed by the label of the third legion, which appears on the stone. This legion was first called Augusta, but after its soldiers had achieved renown in suppressing the Jewish insurrection in Cyrene in 116, it was honoured with the title Cyrenaica. The standard-bearer of the legion (perhaps a veteran who had taken part with a detachment of his legion in the siege of Jerusalem in 70 A.D.) could not have employed the title before it was conferred. The inscription is dedicated to Jupiter-Serapis, a Romano-Egyptian deity. Serapis

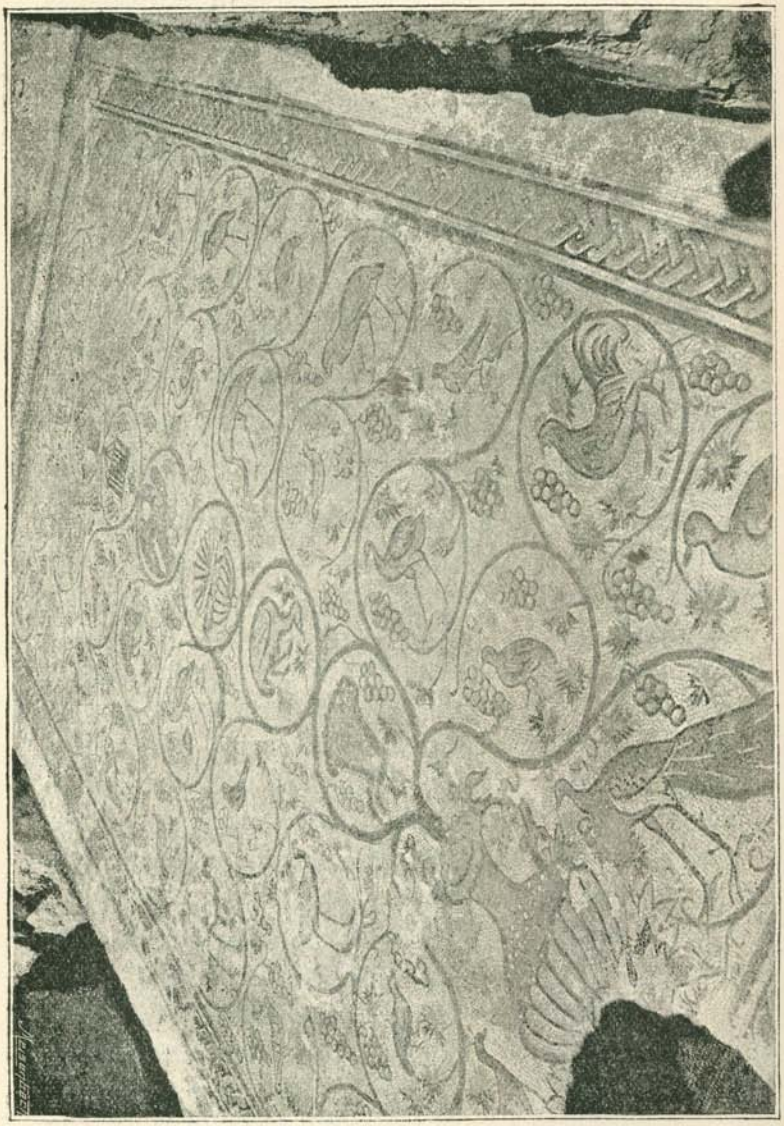
began to be the tutelary divinity of Alexandria under Ptolemy Soter, who probably imported the name from Sinope in Pontus, on the Euxine. The new god soon became identified by the Egyptians with their own Osar-Apis, of similar sounding name.

It is needless to add that the inscription is not *in situ*, but is built into the modern walls, erected in 1542 A.D.

Mosaic North-west of Damascus Gate.

Some 350 yards north-west of the Damascus Gate (see key map) there was found a beautiful mosaic in July, 1894. The discovery was made by the owner of the land, an officer, while digging for foundations for a new house, and the clearance was completed under my superintendence at the request of our Imperial Commissioner. The mosaic, which measures about 21 feet by 13, is surrounded by rude rubble walls, plastered on the inside, similar to the walls of the church we discovered on the Mount of Olives. At the east end there is a small apse. The building was founded on the rock, and the débris over the walls was hardly more than 3 feet thick. Under the south-west corner is a small natural cave, in which we found human bones, and lamps of the fifth and sixth centuries A.D. That the room is a mortuary chapel is also confirmed by the Armenian inscription, found at the east end, to the effect that the place was in memory of all those Armenians whose name the Lord knows.

The mosaic is a most elaborate piece of work, the stone tesseræ being of almost every colour. Within



MOSAIC PAVEMENT NORTH OF JERUSALEM.
(From a photograph.)

a border showing the guilloche pattern we observe a vase, from which springs a vine ramifying into branches, on which hang grape-clusters; among the branches are numerous birds, peacocks, ducks, storks, pigeons, fowls, an eagle, a partridge, a parrot in a cage, etc., It is almost perfectly preserved. I am glad to report that the owner has covered the chamber with a vault, and it may be seen on application.

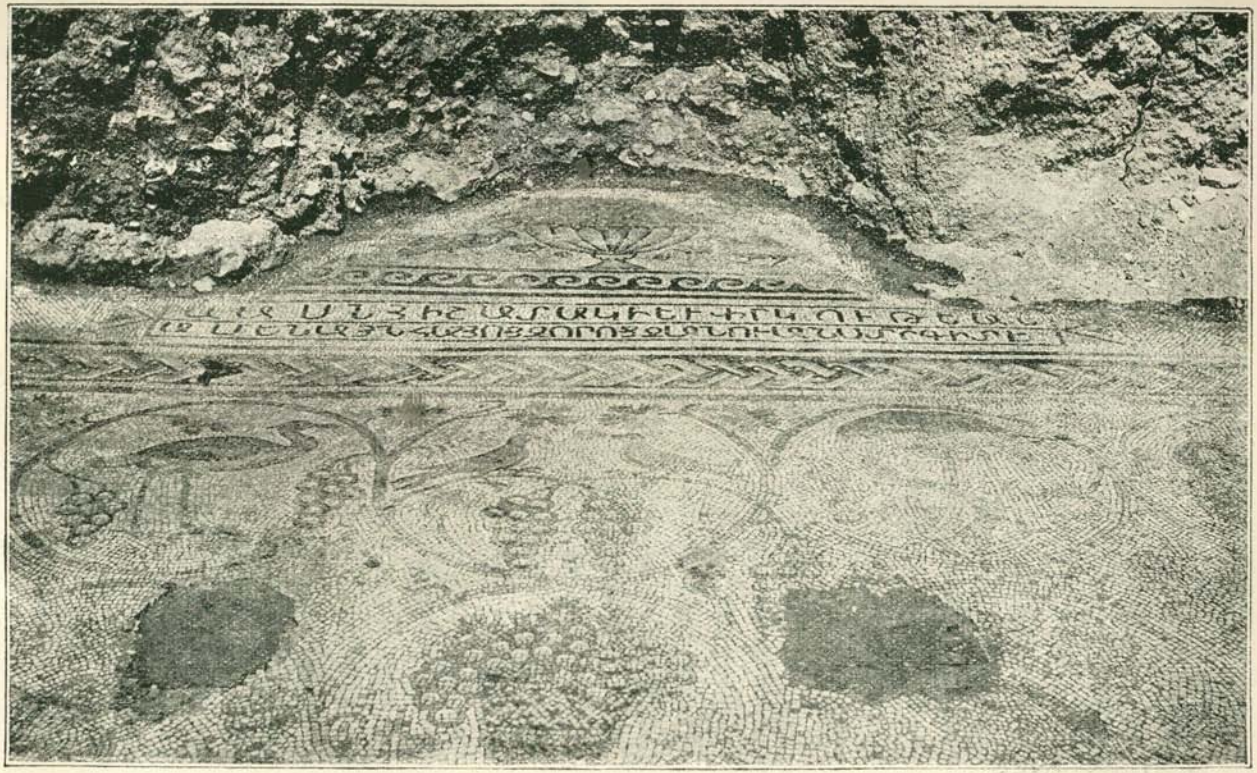
NOTES BY DR. MURRAY.

Dr. Murray, of the British Museum, kindly furnished the following note in regard to the mosaic :*

"There is much that reminds me of a late classical spirit, such as we expect in the period between Constantine and Justinian (321-560 A.D.). The general design of a great plant or tree growing out of a vase recalls a mosaic from Carthage now in the British Museum, which can hardly be later than the early part of the sixth century, while, again, the birds enclosed among the branches remind one in a measure of the early Christian sarcophagi. . . . It is true that the habit of enclosing animal forms within circles formed by foliage was very frequent in Byzantine work, but equally it had been there derived from late classic times when drawing was far purer, and more like that of the new mosaic. The difficulty at present is to reconcile this view of an early date with the Armenian inscription, which forms apparently an original part of the mosaic.

* *Quarterly Statement*, 1895, p. 126.

"With reference to this difficulty, a distinguished Armenian scholar, the Rev. S. Baronian, of Manchester, has, in a very courteous letter to myself, discussed the various possibilities. He points out that the Armenian alphabet was invented early in the fifth century (about 406 A.D.), and that palæographically the present inscription would, from the simplicity and grace of the characters, suggest a comparatively early stage in the history of that alphabet. Next, referring to another mosaic, with fragmentary Armenian inscriptions, found at Jerusalem in 1871, and also decorated with figures of birds and grapes, Mr. Baronian observes that in this instance the inscription indicates the tomb of Schouschanic, mother of Artavan. He proceeds: 'Schouschanic (which means "a little lily") was a name used and known in our history during the fifth century. More important, however, is the name of Artavan. In general, the manner of designating a person in such inscriptions was to add the names of the parents; here the opposite method of adding the name of the son shows that the latter must have been a well-known personage in the East, and that, in fact, it must have been he who had erected the tomb. From these considerations I venture to accept as very probable the opinion of the Bishop Astouadzatour Ter-yohannesiantz, who, in his "Chronological History of Jerusalem," more especially that of the Armenian convent of St. James in that city (Ed. "Jerusalem," 1890, 2 vols., in Armenian), says that this Artavan was the Artabanes of Procopius ("Vand.," IV. 28), and Jornandes ("Suc-



MOSAIC PAVEMENT NORTH OF JERUSALEM, SHOWING THE ARMENIAN INSCRIPTION.

(*From a photograph.*)

cess," 149, 3), the slayer of Gouthar in Africa, A.D. 546, for which act he received from Justinian the governorship of Africa, where he officiated for some time. This Artabanes is described by Procopius ("Persian Wars," II. 3) as an Armenian, and a son of John the Arsacide.' So that the age of Justinian would suit the inscription, and as that age was famous for its mosaic work, as Mr. Baronian remarks, we might be prepared to accept that date for the mosaic.

"Should, however, the style of the mosaic point to an earlier period, Mr. Baronian suggests that this view might find some support in the name of 'Esvaghan,' which occurs on another Jerusalem mosaic discovered some years ago, if Bishop Astouadzatour is right in claiming this 'Esvaghan' as identical with the King of that name mentioned among others by the historian Moses of Chorene ('History,' III. 54), where he states that Mesrob, the inventor of the Armenian characters, had gone on a visit to that King at his request, and had invented a special alphabet for the nation. That would go to show that the Armenian inscriptions on the Jerusalem mosaics may very well be nearly contemporary with the first introduction of the alphabet. Mr. Baronian quite allows that there are certain difficulties with this name of Esvaghan, as it occurs in the mosaic. But these difficulties, I gather from his letter, would be surmounted if we could positively, on the strength of the workmanship, assign the mosaics, as I am at present inclined to do, to

about the time of Justinian, or a little before that.

"The word for word translation of the inscription as given by Mr. Baronian is: For memory and salvation—of all the Armenians whose names knows Lord."

CHAPTER VII.

THE SMALL FINDS AND NOTES ON THE MASONRY.

The pottery—Jewish ware—Roman ware—Later ware—General objects—Chariot wheel—List of coins—Hebrew seal—Mr. Dickie's notes on the masonry—Modern tools—Boss-and-margin stones—Superior masonry—Recurrence of various styles—Masonry of upper wall—Crusading work—Back-setting—Recapitulation.

The Pottery.

During the course of our excavations many thousand fragments of pottery were exhumed. The fact that we found comparatively few unbroken jars, lamps, and vases is due to the conditions under which we were working. Almost all the soil in which we excavated represented the accumulation over ruined buildings of débris, in which the pottery occurred by accident. Only in the case of a few tombs which we opened had the lamps been placed with a purpose. As a rule, the soil had been disturbed many times, and the pottery was not of much value in determining the age of the walls near which it was found. The older ware was usually found at the greatest depths, but it was necessary to bear in mind that, in sinking to the rock on which

they wished to rest their wall, later builders disturbed older débris, which, after the wall was built, would still remain banked up against its buried foundations. The presence or absence of certain kinds of pottery within a building or above a street was, however, significant. For example, the earliest ware did not occur either within the Siloam church or above the paved street in the Tyropœon. Again, the presence of known types built into the foundation of the isolated tower and of the late wall, both on the western hill, showed that these constructions were later than the time when these types were first in use.

JEWISH WARE.

Of the pottery only representative specimens have been drawn. These fall under three general types: (1) Jewish, (2) Roman, (3) Byzantine and later. Of the Jewish type, those found most commonly and always associated are Nos. 1, 2, 6, and 11. No. 2 is a pot with a globular body, rounded at the bottom, with a short neck, and small handles springing from the brim.* It is made of fine purplish-brown paste, is wheel-turned, showing a faint ribbing. The specimen drawn was found with two or three other whole ones at the base of the old wall a few yards north-west of the gate near Siloam. These pots were usually smoked, showing that they were used for cooking. This type occurred frequently at Tell-el-Hesy in cities 6 to 8, which cover a period from 800 to 400 B.C. Some specimens

* See Plates XXV. to XXVII.

POTTERY AND GLASS

occurred still earlier, merged with Phœnician types. The only difference between the jars found at the Tell and those found at Jerusalem is that the former show no signs of the faint ribbing. The type is shown in Fig. 240 in my "Mound of Many Cities." This differs from the specimen drawn here in the position of the handles, which, though springing from the neck, rest further down upon the body of the pot; but I have a photograph, taken at the Tell, of another and more characteristic specimen, which shows the small handles, similar to those found at Jerusalem. In Egypt this type comes down to the first century A.D.

No. 1 is an open lamp, a coarse development of a Phœnician type, from which it differs by springing from a stand. This type was also found with the Jewish pottery at the Tell (see Fig. 237 of my book). No. 6 is of the pilgrim-bottle type, known in Cyprus. It is of red paste, wheel-turned, with the handles streaked down by the fingers. A similar shape, but with more circular handles, occurs in the Tell-el-Hesy photograph just mentioned, which represents the pottery of cities 7 to 8, ranging from 500 to 400 B.C. Petrie notes that this shape is found much earlier at the Tell (see Figs. 159, 160 of his "Tell-el-Hesy"). The photograph also shows a third type of jar, of which fragments were found at Jerusalem, but not drawn here.

No. 4 is found at Jerusalem in connection with Nos. 1, 6, and 11, but not so frequently as these. It is made of fine red paste. Nos. 3 and 5 are small open lamps of a type in use during Phœnician

times, and not unlike those used in Palestine to-day. The beautiful shape No. 7 is made of a very fine gray paste; I do not recognise the type. No. 8 is of the light red paste characteristic of Phœnician ware. No. 9 is similar in material, but its shape, as well as that of No. 10, is uncharacteristic. No. 11 is most common, and, as I have said, always found in connection with Nos. 1 and 6. It is made of very thick reddish paste. No specimen was found whole, but the shape of the vessel may be reconstructed from the three bits, which evidently belong to the same type. It is a thin flask, with long neck and stand and a small body. The bottom of the stand is always curiously marked.

No. 12 was also found along the old wall. It is a handle similar to those found on early Phœnician bowls (see No. 181, "Mound of Many Cities"), but differing in having a hollow circular end. In connection with these old types, we also found bits of the high Greek vases, with knob-like terminations (see Fig. 236, "Mound of Many Cities"), and with handles springing from the neck and descending perpendicularly to the body. These at the Tell come down to 400 B.C. from earlier times.

Nos. 13, 32, and 33 suggest Phœnician types. Nos. 49 and 50 recall the well-known Phœnician female figures, with pointed breasts and beak. No. 14 represents a type of twisted moulding found on Jewish pottery at Jerusalem. At the Tell it occurs on the earliest Amorite ware (see Fig. 92, "Mound of Many Cities").

Another characteristic of the early pottery was

found in the *burnished facing* occurring on many small fragments. Petrie shows how this lasted from the earliest Amorite time down to the Jewish period, when it occurs in a debased form. He says: "The earliest burnishing on the red face is in wide open crossing lines, which yielded to closer patterns, and in late times a mere spiral burnishing made on the wheel." Figs. 83 and 80, "Mound of Many Cities," illustrate this type.

Roman Ware.

We now come to the Roman pottery. The well-known types showing the pronounced ribbing have not been drawn. Numerous tiles turned up, some of them having the stamp of the tenth legion, LEGIO X FRETENSIS, but in abbreviated form shown in Nos. 36 to 38. On No. 36 may be seen a boar, which was a symbol used by this legion. No. 35 is a bit of bowl, ornamented with heads in a late Roman style. The fragment of a dish, No. 51, appears to be made of mock Samian ware, and shows the figure of a horse.

Later Ware.

The rest of the pottery is mainly Byzantine and Arab. Nos. 15 to 27 are all lamps. Nos. 15 and 16 were found in the sepulchral cave under the mortuary chamber, with beautiful mosaic, which dates from the fifth or sixth century A.D., found north of the Damascus Gate. The ornament on No. 18 is made by the repetition of two letters.

No. 19 is stamped with the well-known inscription, ΛΥΚΝΑΡΙΑ ΚΑΛΑ, "pretty little lamp." The round lamp, No. 21, appears to be a development of the plain No. 22, which was found in connection with older pottery. Nos. 23 and 26 appear to be Arab. The type of No. 27, made for several wicks, is well known in Greece. The tiny jars, Nos. 28 and 29, were found outside the house built over the paved road leading to the south-west gate. Accordingly they are very late. I can make nothing out of the curious object No. 31. No. 39 is a slab of marble, evidently part of a mould for casting metal crosses. The incisions are $\frac{1}{16}$ of an inch in depth. Provision is made for the metal to run out at either end. Nos. 40-45 show various forms of crosses. Nos. 46 and 47 are inscribed jar-handles. The former reads ΑΝΤΙΜΑΧΟΥ.

No. 48 is a marble fragment with vine-leaf ornament.

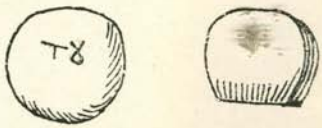
General Objects.

On Plate XXVIII. a few general objects may be seen. No. 52 represents a type which occurred at Tell-el-Hesy at various levels (see Fig. 256 of my book). It is a polished article in bone, shaped like a pointed paper-cutter, perhaps used in arranging a pattern in weaving. This specimen was found by the old wall, as was also No. 53, also of bone, which resembles a flat spoon. No. 54 represents a type found universally in Palestine, and also in Greece. At the Tell I called similar objects in slate spindle-whorls. The present specimen is of bone, prettily

ornamented. No. 55, found near the tower north of aqueduct, is a needle of bone. No. 56 is a thumb from a statue of native marble. Nos. 57 and 58 are spear-heads, the former of iron, the latter of bronze. The massive iron nail, No. 59, was found under the road coming from Bab Neby Daûd. No. 60 is an instrument of bronze, with a flattened-out head. The brass lamp-handle, No. 61, was one of the first objects found; it is late. No. 62 is a dish-handle in bronze. The bronze buckle, so like a buckle of to-day, occurred inside the gate near Siloam.

Chariot Wheel.

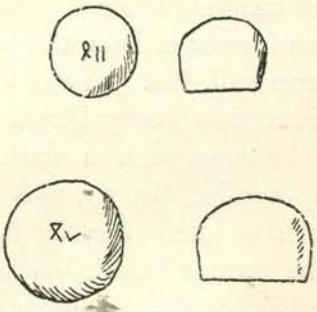
In the débris above the street in the Tyropœon Valley we found several fragments of iron, which, when put together, turned out to be part of the tire of a chariot wheel, having a 10-inch radius. The pieces measured $1\frac{3}{4}$ inches in width, and $1\frac{1}{4}$ inches in thickness. They were perforated with holes,



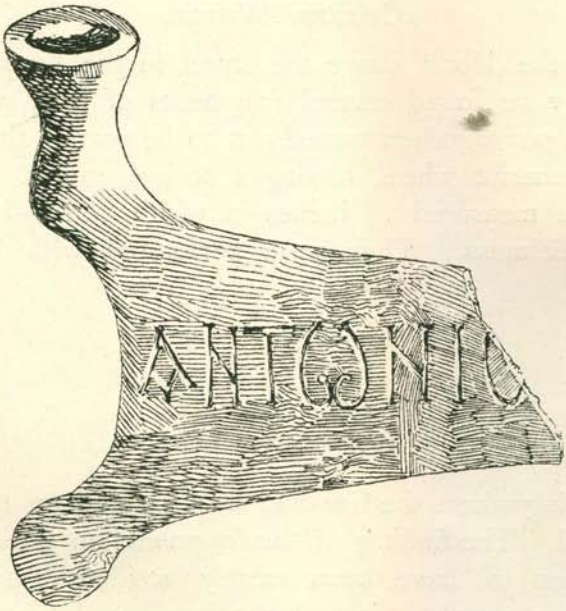
WEIGHT FOUND IN TYROPŒON VALLEY.

showing where the tire had been riveted on to the wheel. The finding of the fragments on the street appears to have been merely accidental, as the many steps show it had not been used for wheel traffic. At a great depth in the valley was found a stone weight of 2·921 ounces Troy. The bottom is carefully ground down, as if to secure great exact-

ness. On it occur two Cypriote letters, which range from Mycenæan to late Greek times. The letter to



WEIGHTS FOUND BY DR. GUTHE.



BRONZE DOOR-KNOCKER FOUND IN TYROPŒON VALLEY.

the right is also used upside-down, as a letter and as a numeral, and it is thus indicated in Dr. Guthe's

drawing of similar weights found by him in Jerusalem.

Of glass we secured very few whole specimens. Those shown in the photograph were found in the tombs east of the Haram. In the débris within the church occurred a curious fragment of bronze, resembling a door-knocker; only part of the inscription remains.

List of Coins.

A large number of coins were found, but these were much corroded, and only about one hundred were decipherable. The following identifications were made by the Rev. Theodore Dowling and Herbert Clark, Esq.:

1. Half-shekel of Simon Maccabæus, year 3 (B.C. 141 or 145); very well preserved (see Madden's "Jewish Coinage," p. 44, No. 6).

2. Coin of same, 4th year of Redemption of Zion (B.C. 138, 137); very well preserved.

3-5. Three coins of Alexander Jannæus (B.C. 78-69).

6, 7. Two coins of John Hyrcanus II. (B.C. 47-40).

8. Coin of Herod the Great (B.C. 37-4).

9, 10. Two coins of Marcus Ambivius, second Procurator (A.D. 9 or 10 to 12 or 13).

11-13. Three coins of Annius Rufus, third Procurator (A.D. 12 or 13 to 14 or 15).

14. Coin of one of the first Procurators.

15. Possibly a coin struck by Valerius Gratus, fourth Procurator; ΙΟΥΛΙΑ, year 3 (A.D. 16, 17).

16. Coin of Pontius Pilate, fifth Procurator (A.D. 26 to 35 or 36).

17-21. Five coins of Herod Agrippa I. (A.D. 37-44).

22-25. Four coins of same, year 6.

26. Coin of Felix, eleventh Procurator (A.D. 52-60). Date of coin, year 14 of Claudius (A.D. 54, 55).

27-30. Four coins of same. Date of coins, year 5 of Nero (A.D. 58, 59).

31-45. Fifteen coins of the First Revolt, year 2 (May, A.D. 67, to May, A.D. 68).

46. Coin of First Revolt, year 3 (May, A.D. 68, to May, A.D. 69).

47-61. Fifteen Roman coins, badly defaced.

62. Coin of the city of Antioch; Roman Emperor (obverse), name doubtful.

63. Coin of the city of Gaza (A.D. 138); finely preserved.

64. Coin of the city of Ascalon.

65-67. Three coins of Constantine I. (A.D. 307).

68-70. Three coins of Constantine II. (A.D. 337-340).

71. Coin of Romulus Augustulus (A.D. 475).

72, 73. Two coins of Justin I. (A.D. 518).

74. Coin of Justin I. and Justinian I. (A.D. 527).

75. Coin of Justinian I., with full-face portrait (A.D. 527-565).

76. One late Byzantine coin.

77-96. Twenty Arab coins.

97. Coin showing (possibly) the cross of a Count of Edessa (*circa* A.D. 1068).

Hebrew Seal.

While digging in the south end of Ophel, we found a red carnelian seal, ½ inch long, having the general scarab form, curved top and straight sides,

HEBREW SEAL.

but without the detailed markings. It is slightly broken at either end. Professor Sayce sees traces of a *lamed*, both at the beginning and at the end of the first line. Accordingly he reads :

(1) לישמצאל
(2) נריהן

"Belonging to Ishmael, Neriah."

According to him, the seal is Israelitish, as shown by the double line between the two names, and the Divine name Yahu, though Ishmael was a foreign name in Judah. For the name of Ishmael at this period see Jer. xi. 8. The second name, Neriah, occurs in Jer. xxxii. 12. The forms of the characters are those of the sixth century B.C. M. Clermont Ganneau takes the second name to be פדיהן (see 1 Chron. xxvii. 20, Pedaiah ; see also 2 Kings xxiii. 36, 1 Chron. iii. 18, etc., where the name is spelt פדיה).*

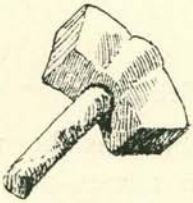
Mr. Dickie's Notes on the Masonry.

Before we enter into the discussion of the chronology of the walls excavated, it seems de-

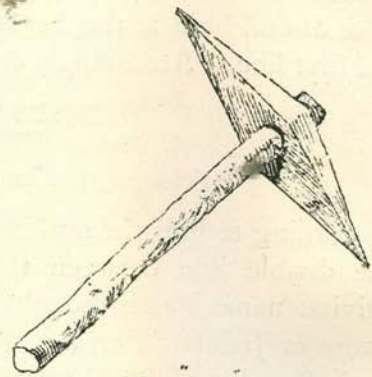
* See *Quarterly Statement*, 1897 : July, p. 181, and October, pp. 304, 310.

No 1 "Comb Pick"

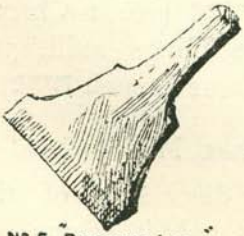
No 2
"Chisel Pick"



No 3 "Mashey"



No 4 "Pick"



No 5 "Droving Iron"

No 6 "Mallet"

HEWERS' TOOLS.

sirable to include in this chapter the valuable notes on the various classes of masonry, originally published by Mr. Dickie in the *Quarterly Statement* for January, 1897, under the title of "Stone Dressing in Jerusalem, Past and Present." From these it will appear that arguments for age based on masonry must be used with great caution.

"Comparatively little is known about the tools used and the method of handling them by the workers in stone of old Jerusalem, hence I venture to submit the result of my observations on the subject.* My investigations have been strictly pursued with a view towards the possibility of characterizing the different styles of masonry discovered in the present excavation to the south of the city as indicative of definite periods. Starting on a basis of certain popular ideas of the characteristic features of the Jewish, Herodian, late Roman, and Crusading stone-dressing, I made careful notes on every style of masonry as it was uncovered, at the same time noting its position and bonding, in the hope of coming to some definite conclusion as to relative periods. As the work proceeded, every new piece of masonry raised a new complication, styles mixed together and alternately preceded and succeeded one another, until the whole question became so hopelessly confused that I was forced to turn in another direction to enable me to systematize my notes that they might

* Dr. Schick, in his paper published in the *Quarterly Statement* for 1893, pp. 198 *et seq.*, gives a good deal of information respecting stone-cutting and stone-dressing tools.

be of any archæological value. A study of modern buildings, and occasional association with native workmen, gave me the key, and I decided that I must commence with the dressing of to-day and work backwards. Before touching on ancient masonry, therefore, I will give a list of the principal tools used by the masons of the present day, with short descriptions of the methods of handling them. The European hewer stands over his stone and works down on it, but the Eastern squats in Oriental fashion, and sets himself parallel to the plane on which he operates.

Modern Tools.

"*The Comb-pick.*—This tool is worked by a short stroke, which alights obliquely on the stone, the teeth forming a series of comb-like incisions, measuring from 1 inch to 2 inches in length, to each stroke. Four sizes are used—five, seven, eight, and nine teeth to the inch. The handle measures about 16 inches long.

"*Chisel-pick.*—Worked with a 'mashey'; upward slanting stroke. The head of the mashey is cut obliquely to suit the position of the operator, makes a rough 'pock-marked' dressing, and is also used for roughly taking down the face of a stone, in which case the effect is deep, flaky, and irregular.

"*Pick.*—Gives the same character of dressing as *chisel-pick, pock-marking*, but is used for finer work; gives a shallower and more delicate effect, produced by a short, direct stroke. Handle 16 inches long.

"*Droving-iron.*—Worked with a wooden mallet in the same manner as an English droving-iron, but as the tool is sharper, and is applied almost perpendicularly on the stone, the furrows are deeper and closer. Each furrow is worked in sections of the width of the tool.

"*Quarry-pick.*—Used with a long curved stroke, and makes long irregular incisions at fairly regular intervals. Only used for quarrying.

"Such, briefly, are some of the hewers' tools used in modern stone-dressing. Careful examination of those dressings, and comparison with what have been found in the excavations, have, from their almost identical similarity, proved to my mind that the same tools used in dressing the stones of the city walls of ancient Jerusalem, are to-day used—in the same manner—in the erection of the hundreds of edifices which are so fast crowding out her ancient monuments.

"That these tools have been more or less continuously used from the time of their introduction into the hands of the artificer, who from century to century has continued to add his testimony to the city's ancient glory, seems therefore a natural inference. The following notes on the tooling of stones from ancient times to the present day will support this theory, and may, I hope, be in some way valuable in influencing archæological conclusions.

Boss and Margin Stones.

"I will commence with what is popularly called Jewish masonry, *i.e.*, large stones with projecting

bosses and back-set margins. This is the most characteristic class of work of the recently-discovered south wall. The bosses vary in projection from 10 inches to 2 inches, and show no tool-marks on the fractures; the stones are roughly squared with irregular margins, which vary from 3 inches to 5 inches in width, and are usually finished off by a comb-pick dressing. In some cases the margins have been dressed off with a ½ inch drafting tool, and in a very few instances they are simply chisel-picked (see specimens, pp. 39, 84, 86, 98, 119). The heights of these stones vary considerably, but the average is from 21 inches to 25 inches, and they are, comparatively speaking, roughly squared and bedded, although the beds and joints are well cleaned off. An earthy mortar with a very small percentage of lime has in some cases been used, but its absence is more general. This class of masonry can be seen immediately on the top of the great course of the Haram Area wall, and I have seen it in the wall abutting on Hadrian's Arch at Athens. The walls of the castle at Banias are built of similar stones, except that in many cases the faces of the bosses show rough tool-marks and the margins are pick-dressed. To-day, boss and margin dressing is used in Jerusalem, and although the stones are of much smaller proportions, the same principle continues.

Superior Masonry.

"Specimen at *d*, Plate V., shows a style of masonry of very different character. The propor-

tion of the stones is similar, and a few have slightly projecting centres of not more than ¼ inch. The margins are carefully comb-picked, and the centres are pick-dressed. The stones are perfectly squared and set. Vertical joints are worked fine and true, and beds are cleaned off smooth, without lime. A look at elevation *c*—*d*, Plate IV., will at once show from the bonding that it is the earliest piece of masonry in this side of the tower, and that the introduction of the margin and boss stones is of a later date.

"It is now pretty generally accepted by the best authorities on Jerusalem topography that the wall to which this tower belongs was in existence at the time of the siege of Titus. Dr. Bliss gives good reasons for supposing that the wall at this point was never again restored after its destruction—viz., from the accumulation of débris between it and the superimposed wall, which may date from the period of Eudocia. Three distinct periods are shown in this tower. The latest face, built of two styles—viz., rough boss and comb-margin stones, and chisel-pick centres and comb-margined stones (the latter evidently re-used), and distinctly shown by the straight wide vertical joint—therefore belongs to a period previous to 70 A.D. Given that it may date from Herodian or late Jewish period, the intermediate restoration of the same class of masonry might belong to a middle Jewish period. This throws the finely-dressed piece of masonry I have just described back to very early times; its beautiful working suggests a leading historical period, when the chisel spoke

while the sword lay dumb, and is akin to a time of 'costly stones according to the measure of hewed stones, sawed with saws within and without, even from the foundation to the coping' (1 Kings vii. 9).

"This example clearly shows that comb-margin and rough boss was used after pick-centre and comb-margin dressing. Yet the tower found beside the gate near Siloam (see Plate XI., and cut, p. 95) illustrates exactly the reverse. Here the beds and joints are not worked quite so fine as in the former instance, and are set in lime; but they are perfectly squared, and set straight and true. The lime joints are neatly drawn, uniform throughout, about ¼ inch wide. The same pick-centres and comb-margins are observed built along with comb-margins and rough boss dressing—both *in situ*—and this tower is evidently a later addition to the wall (built of rough boss and margin stones), as the latter—which at that point is plastered—runs behind the projection, leaving an open joint of about 1 inch wide.

Recurrence of Various Styles.

"Two such examples give a striking illustration of the freedom with which the ancient builders used their tools. Chisel-pick centre with comb-pick margin precedes comb-pick margin with rough boss dressing, which latter, in its turn, precedes, and is also contemporaneous with, the former. Comb-pick margin with chisel-pick centre dressing occurs on the stones of the baths discovered outside the gate at Siloam (see p. 225), on Crusading work, in

the Turkish walls of the sixteenth century, and to-day the same style of dressing is seen.

"It is interesting to note that the *picked* margin (in distinction from the *comb-pick* margin) with the rough boss occurs only in a few isolated cases in the south wall, and, excepting one instance, none have been *in situ*. The boss and margined stone in specimen *o-k*, Plate V., is of this class, and is a fair sample of the isolated positions in which such examples have been found. The tower discovered near the English Cemetery (see p. 7) is the one solitary example *in situ* in the whole line of wall from that point to Siloam. The margins are *pick*-dressed, and the bosses are rough, and show no tool mark. The courses average 27 inches high, and the stones, though roughly jointed, are set true in lime joints about ½ inch wide. The boss and margined stones in the lower courses of the wall projecting from the Haram Area are similarly dressed, although of much larger proportions, and some of the stones built into the present Turkish south wall of the city are also of this class. The fact that all these stones are of the hard *mizzeh* beds, however, probably accounts for this peculiarity.

"The beautifully dressed and jointed stones in the walls of the Haram Area and the lower courses of the Jews' Wailing-place, usually assigned to the time of Herod, stand unique in their character. Only once has this class of dressing been found in the excavations, and that on a fragment built into a later restoration of the wall, beside the projecting chambers (see on p. 32). It is a fragment from

earlier work, and is built along with boss and margin stones. The sunk margins, and about 1 inch all round the slightly projecting centre, are worked over with the comb-pick, the centres being finished off with a very shallow picking, much more carefully and delicately executed than any of the picking I have before described. The proportions of these stones, as can be seen from Sir Charles Warren's records, are huge in comparison with any that have been found in the present excavations.

Masonry of Upper Wall.

"The stones in the upper later wall (see Plate III.) may be described in general as even-faced dressing without margins. A few have picked centres and margins, but the characteristic stones are cleaned off plain, either with the comb-pick or a long stroke chisel-toothed tool, which dresses in irregularly curved drafts of about $\frac{3}{16}$ inch to $\frac{1}{4}$ inch wide, varied in direction, presumably to suit the position and convenience of the hewer. A few plain chisel-picked stones are also seen. Joints are well worked, and the setting is true. The comb-picked stones are similar to the stone under the springer of Robinson's Arch, and to a few stones in the Haram Area wall, where the city wall projects from the Mosque el Aksa. These latter, from their position and bonding, evidently existed before the Byzantine arch, which has been inserted into the wall at that point.* The upper courses of the Jews'

* See, however, remarks on p. 26.—F. J. B.

Wailing-place show similar dressing. Plain-faced, *chisel*-picked stones are also built along with comb-picked stones in the upper courses of the Wailing-place, and similar comb-pick and chisel-pick plain dressing can be traced up to the present day.

"Quarry-picked stones occur in all ages.

Crusading Work.

"The parallel furrowed tooling, usually assigned to the Crusading period, has been found nowhere in the excavations, except in the wall which was uncovered in the Augustinian property, and which is undoubtedly of that late period. I have never seen it in earlier work, but in modern work it crops up continually, and only a week ago I sat beside a native workman while he completed the dressing of a stone which, with a little weathering, would have taken a place with perfect security in the recently discovered wall. The 'droving-iron' was the tool used. In a few cases the same method of use with a toothed tool has been employed, which gives the furrowed effect with a combed detail. A diagonal direction is usually followed in the dressing, but this is not essentially necessary to class it with Crusading work, as there are many perpendicularly furrowed stones built in juxtaposition to diagonal work.

Back-Setting.

"M. Viollet le Duc considers back-setting an indication of very high antiquity. Allow me to give the following facts to show how far astray one may be led by such a dictum.

"The wall emerging from the Jewish Cemetery (see specimen at z, p. 84) stands four courses high, and is back-set on each course from 2 inches to 5 inches. A part of the late tower found near the gate at Siloam is back-set on each course for six courses, from $\frac{3}{8}$ inch to $\frac{7}{8}$ inch. Tower T in the lower wall (see Plate IV.) at its south-east angle is back-set three courses, 2 inches on each course, and some of the towers of the existing Turkish south walls are back-set in the same manner.

"The stones of the old south wall are usually laid on their natural beds, but there are many examples of their being set on hem.

RECAPITULATION.

"These are the results of my investigations, and whatever light may be shed on the question, it does not, I am afraid, help us to define the date of a building by its dressing. On the contrary, it tends to encourage scepticism as to the possibility of fixing periods by any hard-and-fast rules of masonry alone. Unlike the case of Cyclopean polygonal masonry, the examples I have quoted show no line of demarcation, not even a period of transition. Each succeeding style has mingled with its predecessor from the time of its introduction. Boss and margin work may have been used in early Jewish times, but was undoubtedly used in later Jewish, Roman times, and afterwards. Comb-pick margin with pick-centred dressing was certainly used contemporarily with the boss and margin, and may have been used before. Quarry-pick dressing

is universal. The delicate pick-centre and comb-pick margined dressing of the Haram Area is certainly characteristic of one great building period, such as that of Herod might signify. The plain-faced styles with comb-pick and chisel-pick dressing may have been introduced into Jerusalem in Roman times, and have been used since. The furrowed Crusading dressing seems alone to definitely date its origin, and its after-use is beyond doubt. Ornament, characteristic mouldings, or plans, are—with certain limitations—sufficient data on which to base the date of buildings. Dressing is an indication; combined with peculiarities of setting or jointing, its evidence becomes most valuable; but unless backed by some such auxiliary as inscriptions, pottery, or the like, simple masonry is a frail basis on which to found archæological deductions in Jerusalem."

CHAPTER VIII.

HISTORICAL SKETCH OF THE WALLS OF JERUSALEM.

Scope of the present volume—History of the walls—The Jebusite city—The "City of David"—Solomon—Later Jewish kings—The Captivity—Ruin of walls—Nehemiah's work of repair—The Greek dominion—Destruction of walls by Apollonius—The Maccabees rebuild the walls—Pompey destroys the walls; rebuilt by permission of Julius Cæsar—Herod's siege—Agrippa's wall—Josephus' account of the walls—Destruction of walls by Titus—Ælia Capitolina—The Bordeaux Pilgrim—The Epitome of Eucherius—The Madeba mosaic—Antoninus Martyr—The Venerable Bede—Bernard the Wise—Jerusalem in the twelfth century—Map of Marina Sanuto—Recapitulation.

Scope of the Present Volume.

The scope of this volume is limited by its title: "Excavations at Jerusalem, 1894-97." This scope includes two tasks: the careful description of all the remains excavated, and the discussion of their historical bearings. The first task, which depended upon the spade, the tape-measure, and the note-book, has been accomplished in the previous chapters. We are now confronted by the second and far more

delicate one.* But before we attempt this, it may be well to mention what our scope does not include. The general question of Jerusalem topography is extremely complicated, and contains many moot points. It has been exhaustively discussed, and conflicting theories have been ably supported by their respective advocates. Had I a new theory to offer in respect of this general subject, this would not be the place to advance it. My excavations were conducted exclusively in the southern part of the ancient city, and I shall touch only those questions which apply to the area embracing my shafts and tunnels. The burning subjects of the site of the Temple, the position of the Holy Sepulchre, the course of the Second Wall, the site of the Royal Towers, have no place here. Neither do I propose to reopen from the beginning such questions as concern my excavations. The various views are ably exposed in the article "Jerusalem" of Smith's "Bible Dictionary" (edition of 1893), and I shall refer to these in passing, merely to show which one of them my excavations appear to support. My aim is to see what new light may be thrown upon old questions. Although in discussing particular cases it will be impossible to avoid expressing my individual opinion, yet I hope to reduce the theoretical to a minimum, and to let the excavations speak for themselves.

* In the case of the church at Siloam and some other excavations, complete in themselves, we have already discussed the question of dates, but in general, chronological matters have been left for the next chapter.

History of the Walls.

As our work was largely concerned with the walls of the city during its various periods, we may give a brief sketch of the annals of Jerusalem from the earliest times, with particular reference to the passages in which the various historians make mention of the building or of the destruction of the fortifications, especially to the south.

The Jebusite City.

Leaving aside the disputed identification of the Salem of Melchizedec with Jerusalem, we find the first mention of the name in the Tell-el-Amarna tablets, which consist of letters sent to the Egyptian kings Amenhotep III. and IV. (*c.* 1500-1450 B.C.) by their consuls and allies in Syria, Palestine, and in countries further east. In the books of Joshua and Judges the place is called both Jebus and Jerusalem, the former evidently being the original name. Its King, Adonizedec, joined the Amorite league against the Israelites (Josh. x. 1) and was put to death. After the death of Joshua the place was besieged by the tribes of Judah and Simeon, who "fought against it, and took it, and smote it with the edge of the sword, and set the city on fire" (Judg. i. 8). We learn from Josephus ("Antiquities," V. ii. 2) that the place was divided into an upper city and a lower city, and that the walls and position of the former proved too strong for the besiegers, who, after taking the lower city, abandoned

the siege and moved off to Hebron. This explains the failure of the Benjamites to drive out the Jebusites (Judg. i. 21). During the whole period of the Judges, the Jebusites kept possession of their city, but after reigning seven years in Hebron, David felt himself sufficiently strong to attack the enemy still entrenched in the heart of his kingdom.

According to the Biblical account (2 Sam. v. 6-9; 2 Chron. xi. 4-7), when David appeared before the city, the Jebusites, secure in their fancied impregnability, assailed him with taunts. "Nevertheless, David took the stronghold of Zion; the same is the City of David" (*c.* 1046 B.C.). The account goes on to say that David promised to the man who should go up by "the gutter," and first smite the Jebusites, that he should be appointed chief and captain. This honour fell to Joab. The King then established himself in the fort, calling it the City of David, "and built the city round about, even from Millo round about, and Joab repaired the rest of the city."

Josephus ("Antiquities," III. i. 2) expands this account, distinguishing between the feat of David in taking the lower city and that of Joab in storming the citadel, which held out longer. After the latter was taken, David rebuilt Jerusalem, calling it the City of David, joined the citadel to the lower city, and encompassed all with walls. As Josephus ascribes to David the building of the south wall of Jerusalem, which included both hills, it seems probable that, arguing back from the topography of his day, he placed the Jebusite upper city in the western hill. The view adopted by Sir Charles Wilson in

Smith's "Dictionary of the Bible," however, appears to me to be more probable, namely, that the city of the Jebusites was confined to the eastern hill. As the article states, "excepting that its King, who was nearest to the point of danger, took the lead against the league of the Gibeonites, there is no indication that it was of more importance or of greater size than the other towns, whose chiefs or knights opposed the advance of the Israelites. In fact, the Jebusites are always mentioned last, as if of least importance, in the formula by which the Promised Land is designated, and they appear to have occupied a very limited tract of country. There is no reason to suppose that the growth of Jerusalem differed in any material respect from that of other ancient cities. The first colony would naturally settle on the eastern hill, in close proximity to the spring at its foot, and the western hill would be gradually occupied as wealth and population increased. The view adopted in the present article is that when the Israelites entered Palestine Jebus was confined to the eastern hill, and that it then consisted of an acropolis and of a walled town covering the rock slopes of the hill above Siloam. Perhaps, too, as some ancient rock-hewn chambers seem to suggest, there was a small suburb on the south-east slope of the western hill, but it is improbable that the whole of that hill was covered with buildings at such an early period." In our excavations we found remains of rock-hewn chambers higher up the western hill, but these may have been outside the city walls.

The City of David.

Whatever may have been the extent of the Jebusite town, the City of David was clearly on the eastern hill. This was the stronghold of Zion, and in later history occupied the same topographical relation to the rest of Jerusalem as the "City of London" does to "Greater London." We read in 2 Chron. xxxii. 1-4 that when the army of Sennacherib approached, Hezekiah "stopped all the fountains and the brook that ran through the midst of the land, saying, Why should the King of Assyria come and find much water?" In the enumeration of his various works given in another connection at the end of the chapter (verse 30), we find this passage: "This same Hezekiah also stopped the upper spring of the waters of Gihon, and brought it straight down to the west side of the City of David." Further, we read in 2 Kings xx. 20, "He made a pool and a conduit, and brought water into the city;" and in Ecclus. xlviii. 17, "Ezekias fortified the city, and brought the water into the midst thereof; he digged the hard rock with iron and made pools for water." Assuming that these passages refer to one work, there is good reason to suppose that this was the making of the rock-hewn tunnel from the Virgin's Fountain and of the Pool of Siloam, which is its terminus. The antiquity of these works is proved by the inscription found in the tunnel, which, according to the concensus of scholars, may date back as far as Hezekiah. It appears that the overflow of the Virgin's Fountain

was diverted from the Kedron Valley, where it could have been used by the enemy, to a point where it was stored up within the walls, "to the west of the City of David." This point—the Pool of Siloam—is west of the southern end of the eastern hill, hence the City of David must be looked for on the latter. A careful study of the points mentioned in the account of Nehemiah's reparation of the wall leads to the same conclusion (see p. 293 *et seq.*).

Solomon.

The rapid development of the Jewish kingdom is one of the most striking points in history. Saul was hardly more than a petty chieftain conquered by a shepherd. The son of this shepherd was regarded worthy of a marriage alliance with the Pharaohs of Egypt. The capital kept pace with the monarch. Great was the contrast between the old fortress city of Jebus and the Jerusalem of Solomon, with his Temple, palaces, and walls. The latter, Josephus tells us ("Antiquities," VIII. ii. 1, vi. 1, vii. 7), were built much larger and stronger than those that had been before, and were adorned with very large towers (*cf.* 1 Kings iii. 1, and ix. 15 and 24). The eastern hill would no longer have been sufficient to accommodate the great increase of population, and it seems probable that part of the western hill was included at this time.

Later Jewish Kings.

For a long time these walls appear to have stood untouched. The invasion of Shishak of Egypt

(*c.* 970) did not result in any harm to the city, as Rehoboam opened the gates to the conqueror (2 Chron. xii. 2-9; Josephus, "Antiquities," VIII. x. 3). During the reign of Amaziah, however, the walls were greatly damaged. This King challenged Jehoash, King of Israel (*c.* 837) to a battle, which took place at Beth-Shemesh. Judah was worsted, Amaziah was taken prisoner, and Jehoash drove triumphantly into Jerusalem through a breach he made in the north wall, 400 cubits long (2 Kings xiv. 13; Josephus, "Antiquities," IX. ix. 3). This breach was repaired by Uzziah, the son of Amaziah, who also built strongly fortified towers along different parts of the wall, including the Valley Gate (2 Chron. xxvi. 9; "Antiquities," IX. x. 3). His son Jotham (*c.* 756) made further reparation, erected towers, and also "built much on the wall of Ophel," the name attached to the part of the eastern hill south of the temple (2 Chron. xxvii. 3; "Antiquities," IX. xi. 2). These fortifications proved of great use during the reign of the next King, Ahaz, who was besieged by Pekah and Rezin. Encouraged by the inability of his enemies to take the city, Ahaz opened the gates and met the Kings in an open battle, which turned out most disastrously to himself. There is no mention, however, of the pillaging of the city (2 Kings xvi. 5; 2 Chron. xxviii. 5; "Antiquities," IX. xii. 1).

Hezekiah's reign was marked by the great Assyrian invasion (*c.* 701). In view of this, the King not only repaired the existing city walls, but built "another wall without," probably the *second*

wall of Josephus, which extended the city to the north (2 Chron. xxxii. 5; Isa. xxii. 10). From the description of the water-supply of his city, referred to above, we infer that the reason for the cutting of the Siloam tunnel was to bring the water inside the city, and hence that the Pool of Siloam was included within his southern wall. Owing to the sudden destruction of Sennacherib's army, the new fortifications were not molested. Manasseh (696) built an outer wall to the City of David, which, according to the assumption made above, would have been along the east slope of the eastern hill, and "compassed about Ophel, and raised it up a very great height" (2 Chron. xxxiii. 14).

The Captivity.

We now approach a most important landmark in the history of the walls of Jerusalem. Jehoakim, who had been raised to the throne by Pharaoh Necho, in place of his brother Jehoahaz, was in turn invaded by Nebuchadnezzar with his Babylonian army. There is no account of a siege, but Nebuchadnezzar carried off some of the vessels of the temple (2 Chron. xxxvi. 7). Jehoachim, who succeeded his father (597), must have given trouble to his over-lord, for soon after he had ascended the throne, Jerusalem was besieged by Nebuchadnezzar (2 Kings xxiv. 10, 11). The Jewish King surrendered, and, with 10,000 of his subjects, was deported to Babylon (verses 14-16), and his uncle, Zedekiah, made King in his stead. This latter brought down upon himself the anger of his

suzerain by attempting to court the favour of the King of Egypt (Ezek. xvii. 15). Nebuchadnezzar once again marched on Jerusalem, and began a siege, which lasted, with a slight interruption, for a year and a half. On the ninth day of the fourth month (586 B.C.) a breach was made in the wall, the enemy entered, and Zedekiah with his followers fled through the gate between the two walls, by the way of the King's garden to Jericho (2 Kings xxv. 3, 4; Jer. xxxix. 2-4, lii. 6). Josephus ("Antiquities," X. viii. 2) says that he fled out of the city through the fortified ditch. This gate must have been somewhere near Siloam. We are not concerned here so much with the burning of the city, the spoliation of the Temple, the fearful massacres, and the carrying off of the survivors to Babylon, as we are with the statement that the Chaldeans "broke down the walls of Jerusalem round about" (2 Kings xxv. 10).

Ruin of Walls.

How extensive was the destruction we see by reading the account of their rebuilding by Nehemiah (445 B.C.). He found the "walls of Jerusalem broken down, and the gates thereof burned with fire" (Neh. i. 3), and so complete was the ruin at some points, that when on his night ride of inspection of the city walls he arrived at Siloam, he says "there was no place for the beast that was under me to pass" (ii. 14). The idea of rebuilding these fortifications provoked the scorn of Sanballat, the ruler of the Samaritans. "What do these feeble Jews?"

he asked. "Will they revive the stones out of the heaps of the rubbish that are burned?" (iv. 2).

Nehemiah's Work of Repair.

Notwithstanding this man's opposition, the great work of repair was accomplished in fifty-two days. Different portions were assigned systematically to the various chief men with their followers, and so great was their enthusiasm, shown by dividing themselves into two bodies, alternately watching under arms and building, that Nehemiah has placed on record the amount of work done by the various gangs. Accordingly, we have in the third chapter the names of different gates, towers, and buildings arranged in order. Again, in the description of the dedication of the wall, in the twelfth chapter, we find many of the same places mentioned, and invariably in the same topographical order. A study of these two chapters results in a clear view of the general features of the topography of the city at that time, while some of the points can be fixed with more or less exactness. We may arrive at these by beginning with the account of the dedication. Nehemiah brought the princes of Judah upon the wall, and divided them into two companies; one turned to the left, and passing the Dung Gate and the Fountain Gate, they ascended by the "stairs of the City of David," and paused at the Water Gate. The other company, turning to the right, passed "from beyond the Tower of the Furnaces, even unto the Broad Wall," and passing the Gate of Ephraim, the Old Gate, the Fish Gate, the Towers of Hananeel

and Meah, to the Sheep Gate, they "stood still in the Prison Gate," or the "Gate of the Guard" (verse 39), and, with the other company that had paused at the Water Gate, "gave thanks in the house of the Lord" (verse 40).

The Water Gate was approached from the south, as the company reached it by way of the Fountain Gate and the stairs of the City of David, and from the third chapter (verse 15) we find that the Pool of Siloam lay between these two places. The Water Gate, thus, was one of the southern entrances of the Temple, and the Prison Gate one of the northern.

It seems probable that the procession started from a point opposite the Temple, towards which the companies were gazing before they began their march. For the company that went south are said to have turned to the right, and the company that went north to the left. Such a point would come on the modern map very near the Jaffa Gate. It lay between the Tower of the Furnaces, the first point on the route of the northern company, and the Dung Gate, the first point mentioned on the route of the southern company. It is the route of the latter that concerns us, for it embraces the area of our excavations. All the points mentioned on it (except possibly the House of the Mighty) are referred to in the account of the repairing of the wall, given in the third chapter, which also adds many others. This begins at the Sheep Gate, north of the Temple, and circles around to the same point, which it approaches from the south. We may take it up at the Tower of the Furnaces and examine it

as far as the Water Gate, as these, with the places intervening, are enumerated in the order given in the description of the southern route of the procession.

From the thirteenth verse we find that between the Tower of the Furnaces and the Dung Gate lay the Valley Gate. This was very likely the starting-point of the procession, the main western gate of the city, which must always have been very near the position of the present Jaffa Gate. Those who repaired the Valley Gate also repaired a thousand cubits on the wall to the Dung Gate. "But the Gate of the Fountain repaired Shallun . . . and the wall of the Pool of Siloah, by the King's garden, and unto the stairs that go down from the City of David" (verse 15). These places are apparently named in order, the Fountain Gate being to the west or south-west of the Pool of Siloam, and the "stairs" to the east or north-east. This is corroborated by verse 37 of chapter xii., which says: "And at the Fountain Gate, which was over against them, they went up by the stairs of the City of David;" that is to say, having crossed the Tyropœon, and being opposite to the Fountain Gate, they ascended the eastern hill near its southern termination to the "City of David"—in other words, to that part of larger Jerusalem which, under the name of Zion, was the stronghold of the Jebusites, and was wrested from them by David, who called it after himself. Though, as we have shown, Jerusalem in later times spread far beyond these limits, the name "City of David" still clung to the spot, gradually including

the whole eastern hill, but never referring to the western. Zion, which in the early passages is equivalent to the "City of David," is used later poetically for all Jerusalem, and in Christian times was transferred to the southern part of the western hill.

The next verse (iii. 16) reads: "After him repaired Nehemiah the son of Azbuk, the ruler of the half part of Beth-zur, unto the place over against the sepulchres of David and to the pool that was made and to the House of the Mighty." The procession having reached the City of David, the royal tombs are now naturally mentioned among the places of interest on the eastern hill. From this point to the Temple various landmarks are mentioned: the armoury; the house of Eliashib, the High-Priest; the tower that lieth out from the King's house; the court of the prison; the great tower that lieth out (the remains of which were probably found by Warren, see p. 128); turnings of the wall; the wall of Ophel, etc. Many ingenious theorists have attempted to lay out the exact course of the wall and to locate these landmarks, but as these differ widely, in absence of surer indications, we need only remark that this enumeration of buildings goes to prove that all through the Jewish kingdom the part of the eastern hill south of the Temple had been of great importance.

The Greek Dominion.

For the next 200 years, during which the Jews were under foreign masters, there is little to say about the walls. In the year 331 B.C. occurred the

visit of Alexander the Great to the Holy City. Though Jerusalem was taken about the year 320 by Ptolemy Soter, the country was the object of a struggle between him and Antigonus, till the defeat of the latter at Ipsus (301), after which it came under the rule of Ptolemy. At about this time the High Priest, Simon the Just, repaired the sanctuary, strengthened the temple enclosure by new retaining walls of great height, and fortified the walls of the city more strongly (Ecclus. l. 1-4). For almost a century of Ptolemaic rule the city enjoyed prosperity. The interesting description of Aristeas, dating from this period (*c.* 250 B.C.), unfortunately does not throw any light on the course of the walls or position of the gates. In 218 began the struggle for the possession of Syria between Ptolemy Philopater and Antiochus the Great. Jerusalem suffered. In 203 it was taken by Antiochus. In 199 it was re-taken by Scopas, the Alexandrian General. But in 198, the soldiers of Antiochus, having again worsted the Egyptians, were admitted by the Jews into their capital ("Antiquities," XII. iii. 3, 4). We now begin to observe the spirit of faction among the Jews, those rivalries for the high-priesthood which had such terrible results. This office had been sold by the infamous Antiochus Epiphanes alternately to Jason and to Menelaus, who were brothers of the good Onias III., having changed their Jewish names for Greek ones (2 Macc. iv. 7, 8, and 24; "Antiquities," XII. v. 1). The resulting contest between the brothers became so fierce that Antiochus came in person to Jerusalem (170 B.C.),

massacred the people, and pillaged the Temple (1 Macc. i. 20-24; 2 Macc. viii. 22; "Antiquities," XII. v. 3; "Wars," I. i. 1).

Destruction of Walls by Apollonius.

He himself returned to Antioch, but, resolving to put an end to future troubles, in 168 B.C. he sent Apollonius to Jerusalem, who slaughtered an immense number of people, pillaged and burnt the city, and destroyed the walls (2 Macc. v. 24-26; "Antiquities," XII. v. 4). The foreign garrison was entrenched in a citadel north of the Temple, which was strengthened with high walls and towers. The altar of the Temple was desecrated with an offering of swine, Jewish rites were forbidden, and the Temple dedicated to Zeus (1 Macc. i. 47; 2 Macc. vi. 2-4; "Antiquities," XIII. viii. 2).

The Maccabees rebuild the Walls.

Under such persecution the patriotism of the Jews was kindled, and with the entry of Judas Maccabæus, about 165 B.C., better days dawned. Though the Syrians still held the citadel, the Temple was restored and rededicated, and the walls were much strengthened (1 Macc. iv. 60). Such an independent spirit could not be left unnoticed by the Syrians, but the Jews more than held their own against their would-be masters in a struggle lasting till the death of Judas in 161. His successor, Jonathan, obtained many advantages from the rivalry for the kingship of Syria between Demetrius

and Alexander. He began thoroughly to rebuild the wall around Mount Zion, so as to render it a regular fortification. From Alexander he received the high-priesthood, while Demetrius gave up all right to the citadel, and authorized him to charge the building and fortifying of the walls to the royal account (1 Macc. x. 1, etc.). The citadel was taken by his successor, Simon, after a siege of three years, in 142 B.C. It was completely demolished. The eminence on which it stood was lowered so that the Temple might be higher than it, and a new fortress, called Baris, was built on the north side of the Temple, rebuilt later by Herod under the name of Antonia ("Antiquities," XIII. vi. 7). Simon also completed the rebuilding of the wall (1 Macc. xiii. 10).

Under John Hyrcanus, the successor of Simon, Jerusalem was attacked from the north by Antiochus Sidetes, King of Syria (*c.* 135), and a breach in the walls was effected (5 Macc. xxi. 5). Antiochus departed home, after the Tomb of David had been pillaged for his benefit, and John repaired the walls (5 Macc. xxi. 18; "Antiquities," VII. xv. 3, and XIII. viii. 4; "Wars," I. ii. 5). John died in 107 B.C., after a long and successful reign. His successors, beginning with his son Aristobulus, adopted the title of King. Aristobulus was succeeded in 105 by his brother, Alexander Jannæus, who died in 79. The struggle for the mastery between his two sons, Hyrcanus and Aristobulus, brought the Romans on the scene, and in 63 Pompey, aided by Hyrcanus, besieged Aristobulus

in the Temple. The siege lasted three months, when a breach was made in one of the towers, and the Temple fell into the hands of the Romans ("Antiquities," XIV. iv.). Pompey restored it, unpillaged, for the daily worship of the Jews.

Pompey destroys the Walls; rebuilt by Permission of Julius Cæsar.

However, the city walls were entirely demolished (Strabo, XVI.), and Pompey departed, leaving Hyrcanus in the high-priesthood, but depriving him of the title of King. In 47 he was restored to the civil government under the title of Ethnarch by Julius Cæsar, who allowed the city walls to be rebuilt ("Antiquities," XIV. x. 5). Antipater, the father of Herod the Great, was made Procurator of Judea. In the year 40 B.C. Antigonus, the son of the banished Aristobulus, fell upon the city, accompanied by a Parthian army. He seized the Temple, where he was besieged by Hyrcanus, Herod, and Phasaelus. On the pretence of acting as mediator, the Parthian General obtained admission to the city with 500 horsemen, with the result that Jerusalem fell into the hands of Antigonus, Herod alone escaping ("Antiquities," XIV. xiii.).

Herod's Siege.

Early in 39 B.C., Herod, who had been appointed King of Judæa, marched to Jerusalem. Being occupied at different points of the kingdom, he did not take the city till 37. The attack was from the

north ; the outer wall was taken first, fifteen days after this the second wall was captured, and Herod became master of the city. Under his rule Jerusalem attained a splendour probably greater than during the Solomonic era. Besides the rebuilding of the Temple from its foundations, his magnificent works included the erection of a palace and theatre, the enlargement of the tower Baris, which he renamed Antonia, and the erection of the towers Hippicus, Mariamne and Phasaelus at the north-west corner of the old wall, and the tower Psephinus as an outwork to the north. Otherwise, there is no mention of the extension or alteration of the line of walls. His death occurred in 4 B.C. of the received chronology.

Agrippa's Wall.

The history of Jerusalem for the next seventy years is one of friction between the Jews and the Romans, which always increased when the Antonia was filled with Roman soldiers, who came in close contact with the worshippers in the Temple, and which diminished when the soldiers were called elsewhere. By the time when Agrippa arrived in Palestine (41 A.D.) the northern suburb outside the walls had become so important that he enclosed it with a new wall, being the third to the north ("Antiquities," XIX. vii. 2 ; "Wars," II. ii. 6, V. iv. 2). By the year 70 matters had reached such a crisis that the siege of Jerusalem was determined upon, and Titus was despatched with his army. In anticipation of the conflict, the Jews had strengthened the fortifications. ("Wars," VI. vi. 2, where

Josephus in his speech to the Jews says: "New walls were built by you around your city.")

JOSEPHUS' ACCOUNT OF THE WALLS.

The walls as they existed before the destruction of Jerusalem are described by Josephus in "Wars," V. iv.:

"The city of Jerusalem is fortified with three walls on such parts as were not encompassed with unsurpassable valleys, for in such places it had but one wall."

"Now, of these three walls the old one was hard to be taken, both by reason of the valleys, and of that hill on which it was built, and which was above them. But besides that great advantage, as to the place where they were situated, it was also built very strong, because David and Solomon and the following kings were very zealous about this work. Now, that wall began in the north at the tower called Hippicus, and extended as far as the place called the Xistus, and then, joining at the Council House, ended at the west cloister of the Temple. But if we go the other way facing the west, it began at the same place, and extended through a place called Beth-so, to the gate of the Essenes; and then it went facing the south, bending above the Fountain of Siloam, where it also bends again towards the east at Solomon's Pool, and reaches as far as a certain place which they call Ophlas, where it was joined to the eastern cloister of the Temple."

In describing this first wall, Josephus begins at

the tower Hippicus (near the present Jaffa Gate), and shows its northern course. Then, returning to the same point, he shows how it runs south to the gate of the Essenes, where it forms an angle. From this gate, which was thus somewhere near the south-west corner of the city, the wall ran east, making a bend above the Pool of Siloam, which would thus appear to have been outside the wall. This view receives confirmation from a passage in the speech of Josephus to the Jews, in which he tries to persuade them to believe that God was not on their side ("Wars," V. ix. 4). "The springs, too," he says, "which were dry aforetime when they were in your possession, are now flowing more abundantly for Titus. For before his arrival you remember that both Siloam and all the springs in front of the city had failed, so that water was bought by the bucket. But now they flow so abundantly for your enemies as not only to suffice for themselves and their beasts, but even for the gardens." From this passage we gather that the Romans had got possession of the pool, which at the beginning of the war was held by the insurgent Simon ("Wars," V. vi. 1), although there is no account of any attack from the south. Though it is not directly stated that this pool was outside the city (the phrase is, "both Siloam and all the springs in front of the city"), yet such is the inference, as had the south wall been taken at any point Josephus would surely have mentioned it.

As the second and third walls extended only to the north, we need not quote Josephus' description of these.

Destruction of Walls by Titus.

When the city was finally captured, "Cæsar gave orders that they should demolish the entire city and Temple, but should leave as much of the towers standing as were of the greatest height—that is, Hippicus and Phasaelus and Mariamne, and so much of the wall as enclosed the city on the west side . . . but for all the rest of the wall it was so thoroughly laid even with the ground by those that dug it up to the foundations, that there was left nothing to make those that came thither believe that it had ever been inhabited" ("Wars," VII. i. 1).

In regard to this passage I append a note found on page 1626 of Smith's "Bible Dictionary": "The word used by Josephus—περίβολος τῆς πόλεως—may mean either the whole place, or the enclosing walls, or the precinct of the Temple. The statements of the Talmud perhaps imply that the foundations of the Temple only were dug up (see the quotations in Schwarz, p. 385); and even these seem to have been in existence in the time of Chrysostom ("Ad Judeos," III. 431). That the demolition of the walls was in many places only partial is attested by existing remains." This has been confirmed by our excavations.

Ælia Capitolina.

Not even the horrors of the siege could crush the independence of the Jews, or their hate for the Romans, who in the reign of Hadrian were again obliged to send another army against them. Under

their leader, Barcocheba, they kept the Romans fighting for two years near Jerusalem. When the revolt was finally crushed, in 135 A.D., Hadrian caused the ruins left by Titus to be razed to the ground, passed a plough over the Temple foundations, and built a Roman city, under the new name of Ælia Capitolina. The south walls of this new city appear to have run very nearly on the lines of the present city wall.

The Bordeaux Pilgrim.

The first precise notice occurs in the Itinerary of the Bordeaux Pilgrim, 333 A.D., when it is not probable that Hadrian's line had been altered.* Both the site of the house of Caiaphas (which appears to be the spot shown to-day) and the Pool of Siloam were without the city walls. The pilgrim visits the various sites in order. After mentioning the various objects of interest within the Temple area, he says (p. 22): "Also, as you come out of Jerusalem to go up Mount Sion, on the left hand below in the valley beside the wall is a pool, which is called Siloe, and has four porticos; and there is another large pool outside it. This spring runs for six days and nights, but on the seventh day, which is the Sabbath, it does not run at all either by day or night. On this side one goes up Sion, and sees where the house of Caiaphas the priest was, and there still stands a column against which Christ was beaten with rods.

* For the passage quoted from the Bordeaux Pilgrim, as well as for the remaining quotations in the chapter, see the publications of the Palestine Pilgrims' Text Society.

Within, however, inside the wall of Sion, is seen the place where was David's palace."

If the pilgrim emerged from the city somewhere near the present Dung Gate, the Pool of Siloam would have been somewhat to his left in the valley. Near it was a "wall," perhaps a portion of the wall ruined by Titus. After visiting the pool he ascended the western hill, finding the house of Caiaphas outside the wall as it is to-day. He then re-entered the city through the wall of Zion (or the south wall of the city) and proceeded towards the Tower of David. It should be noticed that by this time the name Zion had been transferred to the western hill.

The Epitome of Eucherius.

At some point within the next century the line was altered to include Mount Zion, but not the pool, for we read in the Epitome ascribed to Eucherius, who was Bishop of Lyons 434-450: "The site of the city itself is almost circular, enclosed within a circuit of walls of no small extent, whereby it now receives within itself Mount Sion, which was once outside, and which, lying on the south side, overhangs the city like a citadel" (I.). "On that side of Mount Sion which looks from a precipitous rock towards the east, below the city walls and at the foot of the hill, the fountain of Siloam gushes forth" (VII.). Whatever the exact date of this tract may be, it was evidently written before the alterations made by the Empress Eudocia, who resided in Jerusalem 449-460 A.D. The inclusion of Mount Zion, referred to by Eucherius, was doubtless for

the protection of the great church which was already in existence in 385, when St. Sylvia made her pilgrimage.*

The Madeba Mosaic.

The representation of Jerusalem in the map-mosaic uncovered in 1897 at Madeba probably shows the extent of the city between the time of St. Sylvia and that of Eudocia, who included the Pool of Siloam. Unfortunately, the south-west part of the Jerusalem map is destroyed. But the wall, after including the Church of Mount Zion (on the site of the present Cœnaculum), takes a turn to the north-east, and breaks off; whereas had it included Siloam the direction should have been south-east. Father Cleophas, librarian of the Greek convent at Jerusalem, who discovered the mosaic, regards the direction of the wall as a proof that it antedates Eudocia, a view which he considers to be strengthened by the omission of the Basilica of St. Stephen. We will see later that this view is confirmed by the excavations. Father Lagrange shows† that vestiges of Hadrian's Wall, before Zion with its great church was included, appear on the map inside the line of the extended city. The street of columns stretching south from the Damascus Gate (which may be traced in places to-day) terminates on the map in a gate, north or north-east of the Zion church, at a point within the present Zion Gate. The street from the

* P. 49, Palestine Pilgrims' Text.

† "Jerusalem d'après la Mosaique de Mâdaba," R. P. Lagrange, *Revue Biblique*, Juillet, 1897.

Jaffa Gate, which bends around the citadel, also ends in the same line, north of the church. The other street from the Damascus Gate, running down the Tyropœon, also terminates in a gate near the Temple, which may be the "ancient gate of the city" referred to by Antoninus (560-570 A.D.). (See p. 197 of present volume.)

ANTONINUS MARTYR.

In regard to the course of the walls at his time, this author states: "The Fountain of Siloa is now within the walls of the city, because the Empress Eudocia herself added these walls to the city" (XXV.). This statement is confirmed by Theodosius (*c.* 530), who says (sec. 47): "The Pool of Siloam is within the wall." As a wall including the pool would naturally enclose the western hill, it may be suggested that where she was able Eudocia rebuilt on the old foundations along the south brow.

Jerusalem was besieged by the Persians in 614, and held by them for fourteen years, when it reverted to the Empire. In 637 it fell under Moslem dominion.

THE VENERABLE BEDE—BERNARD THE WISE.

The Venerable Bede (born *c.* 673, died 735, A.D.) refers to Siloam as within the walls, hence it appears that the walls were not altered by the Moslems. Apparently, no change had taken place in the wall on the western hill by 870, when Bernard the Wise writes: "Moreover, in the city there is yet another church to the south in Mount Sion, called the

Church of St. Simeon, where the Lord washed the feet of His disciples. In this hangs the Lord's crown of thorns, and here it is reported that St. Mary died" (XII.).

Jerusalem in the Twelfth Century.

Within three or four years after the taking of the city by the Crusaders we find the southern part of the western hill again without the walls. Sæwulf, writing 1102-03, says: "The Church of the Holy Ghost is on Mount Sion, outside the wall to the south, as far as one could shoot an arrow. There the Apostles received the promise of the Father. . . . In that church is a certain chapel, in the place where Blessed Mary died," etc. (p. 19).

This alteration of the line may have been included in the reparation of the towers and walls commanded by the Khalif of Egypt on the approach of the Crusaders in 1099 (William of Tyre, VII. 23). On the other hand, it may have been effected earlier in the contest between the Turkman Urtuk and the Egyptians, as the anonymous tract called "Qualiter sita est Civitas Jerusalem"—which says, "Outside the gate of Jerusalem eastward, and hard by, is Mount Sion, where Mary departed from the world"—is supposed to have been written before the Latin kingdom, and is tentatively dated 1090. During the first Latin kingdom the Church of Mount Zion remains without the walls, as explicitly stated by the Abbot Daniel (XL.), *c.* 1106-07 A.D.; Fetellus (p. 4), *c.* 1130 A.D.; Theoderich (IV.), *c.* 1172 A.D. (who also states [XIX.] that the Pool of Siloam is

far outside the city); and Phocas (XIV.), 1185 A.D. The walls were repaired by the Crusaders in 1178. In 1187 Saladin took the city, and five years afterwards he personally superintended the building of new walls, which were constructed in a most solid and durable manner ("Wilken Kreuzzuge," iv., pp. 457, 458). These walls were demolished by the order of the Sultan el Melik el Mo'azzem of Damascus in 1219. There is evidence that Saladin did not alter the course of the south wall, as in the tract called the "Citez de Jherusalem," which, as Colonel Conder shows, was probably written between the years 1218 and 1229, we find it distinctly stated (II.) that the Church of Holy Mary of Mount Sion was outside the walls. In February, 1229, Jerusalem reverted to the Franks, and a peace was established to last for ten years and ten months, under the condition that the dismantled walls were not to be rebuilt. At the expiration of this time Frederick II. attempted to rebuild the fortifications, but his new walls were demolished by David of Kerak. In 1243 the city was formally ceded to the Christians by treaty, but in the next year the city was seized by the Kharesmian hordes, who were in turn defeated by the Egyptians in 1247. Since then Jerusalem has been a Moslem city.

Map of Marina Sanuto.

A map published with the works of Marina Sanuto in 1321 shows a wall including the Cœnaculum, and joining the line of the present wall at a round tower, a little to the east of the present

Burj-el-Kebrît; but the map is pictorial, and evidently not drawn to an exact scale. This goes to show that the wall was rebuilt on a line differing from that described in the "Citez de Jherusalem," which excluded the Cœnaculum; this change may have been made by Frederick II., whose wall may have been repaired by the Egyptians, or the latter may have altered the line; at any rate, this wall was apparently in existence in 1280, when Burchard of Mount Sion says: "The whole of the ancient city, together with Mount Sion, is now within the walls, and is inhabited" (VIII.). His description of Mount Zion, which follows, includes the whole of the western hill.

From the fifteenth century and onwards the Cœnaculum is again without the city, as shown by passages in John Poloner, Felix Fabri, etc. In 1542 Suleiman the Magnificent built the walls which are standing to-day.

Recapitulation.

Such, in brief, is the history of the walls of Jerusalem for nearly thirty-five centuries. Twenty times have they been besieged, twice razed to the ground. They have had many different builders, who have built on very different lines. Jews, Romans, Oriental Christians, Crusaders, Arabs, have all left their traces. When we began our work these were almost entirely beneath the soil. Many remains have been found. To fit these in with the historical notices, to assign them to their rightful periods, will be the attempt of the next chapter.

CHAPTER IX.

CHRONOLOGICAL BEARINGS OF THE EXCAVATIONS.

Brief survey of discoveries—Two fixed points—Débris between upper and lower walls—Date of lower wall—Date of upper wall—Identification of gate—Thirteenth-century wall—Date of walls near pool—Fountain Gate—Another key to the chronology—Date of pool—Isolated tower on western hill—Drainage system—Recapitulation.

Brief Survey of Discoveries.

Before we attempt to discuss the chronology of the various walls which we have excavated, and of the other remains described in former chapters, it may be well, for the sake of clearness, briefly to recapitulate these.

1. From the rock tower-base on which the English school is built, the scarp of Maudslay runs south-east, forming another tower-base immediately outside the cemetery; beyond this point the scarp runs north-east. The tower-base, on which masonry is found, is rounded by a fosse, which follows the scarp north-east. This represents a distinct line of wall.

2. From the top of this fosse, immediately opposite the south-east corner of the tower just

mentioned, a line of wall runs south-east for 150 feet, where it turns at a corner tower, from which it was traced east as far as the Jewish Cemetery. This line consists of two distinct periods, first distinguished at the corner tower, and observed again further east, where for a distance of 100 yards we have a lower wall, resting on the rock, and an upper wall, sometimes resting on the lower, sometimes separated from it by a thick layer of débris, which shows that there intervened a time when no city wall existed at this point. The characteristic smooth-faced masonry of the upper line disappears some 300 feet west of the cemetery, while the masonry immediately west of the cemetery belongs to the lower line. The four periods of the gate (100 feet south-east of the fosse) belong to the upper wall, which thus must have been long in use. From the remains found under the street leading to the gate at its latest period (see p. 19), it is clear that this could not be earlier than Roman. Three systems of construction are found in the lower wall, as seen in the large tower T. The masonry of the earliest period consists of exquisitely dressed and jointed masonry. In repairing the wall east of this tower fragments of Græco-Jewish mouldings were used.

3. The lower line, which was traced to the west side of the cemetery, was found to emerge from the opposite side, and to run south-east to a point south of the Pool of Siloam, where it forms an angle. Near the angle is a gate showing signs of three periods. At the gate a drain emerges, which we

assume to be identical with the drain traced by us further up the Tyropœon Valley. We also assume that the paved street found above the drain has its terminus at the gate. At the angle of the wall is a tower plainly added on to the wall.

4. From this tower the wall runs north-east, crossing to the other side of the Tyropœon, whence it ascends the southern end of Ophel. Three periods were observed in this part of the wall: the first is characterized by buttresses; in the second the spaces between the buttresses are filled up, a new line being formed; and the third is shown by an additional retaining wall and by other repairs. The extra towers south-east of the Old Pool appear to belong to a still later line of wall represented by the existing dam.

5. Between this point and Warren's Ophel wall a scarp was found by Guthe, which indicates that the course of the wall from the pool to the Haram lay along the top of the east slope of Ophel. The circuit thus seems to be complete from the Protestant Cemetery to the Haram. Warren's wall is in two periods, his upper wall having a marked resemblance to the upper wall found by us on the western hill (see p. 129).

6. The line of wall first described includes the Pool of Siloam within the city, but branching off from this wall immediately south-west of the old pool were found another wall and scarp, running along the west side of both pools (see p. 116). If we assume that this wall represents an alteration of the line from the gate (the wall crossing the valley

below the pool being abandoned), then the pool would have been at that time without the city. This line was traced as far as the great blockage. If contemporary with the street and drain, this wall (on the assumption that it is an exterior city-wall) must have crossed the valley at the point where the blockage was later erected, as it is proved not to have crossed the path of the street north of the blockage.

7. The street, which appears to come from the west side of the Haram, forks at the blockage, the main branch following the drain towards the gate, and the other branch leading by a flight of steps to the Pool of Siloam. Street, steps and pool appear to be of one construction, all older than the church, which was built in the fifth or sixth century upon the steps. The whole of the main branch appears to have been within the city, but it is possible that the branch to the pool may have passed through a gate in the wall just referred to, at a point now occupied by the blockage.

8. A wall was found enclosing the top of the western hill, making use probably of the scarp of Maudslay. As this wall is built over a Roman street and a Byzantine atrium, and as a late Byzantine moulding is built into its foundations, it must be late.

9. Among other discoveries we may recall the baths south of the Siloam Gate, the isolated tower on the western hill, various mosaics, drains, streets, aqueduct, etc.

Two Fixed Points.

I would now invite the reader to follow the process by which I have attempted to fit these discoveries into a general chronological scheme. As the relative ages of the various constructions are in many cases fairly well fixed, we must look for some definite points from which, with our eye on history, we can argue backwards and forwards. Such absolute data are not furnished by the masonry. But at two points we find ourselves on fairly firm ground—the church, which dates from either the fifth or sixth century, and the débris separating the upper and lower walls on the western hill, indicating an interruption in the history of the city, or at least showing that at a period between the times of these two walls no city wall ran on this line. Our interpretation of the excavations will depend largely upon how we explain these two points.

Débris between Upper and Lower Walls.

We may take the débris first. The first interruption in the city's history was occasioned when Nebuchadnezzar destroyed the walls, but the Græco-Jewish mouldings built into the lower wall show that it was finally destroyed many centuries after the Captivity. Hence the explanation of the débris is still to be sought. In 63 B.C. Pompey destroyed the wall, but it is impossible to suppose that it could have been completely buried at the point in question in the short sixteen years that elapsed before it was rebuilt by the command of Julius Cæsar. A true

period of desolation, however, began 133 years later, when Titus destroyed the walls in 70 A.D., and continued, as far as this old south wall was concerned, for almost four centuries. Ælia Capitolina was built in 135-136 A.D., but the south wall of Hadrian's city excluded the site of the Cœnaculum, which was not again included until some time between the visit of the Bordeaux Pilgrim in 333, and that of Eucherius, in about 440, who mentions the inclusion of Zion. The new wall, however, excluded Siloam, which, according to the preferred reading, was "infra muros." As Siloam was included a few years later by the wall of Eudocia, the reading "intra muros" found in some MSS. may have been an alteration to suit the changed circumstances. The first reading is supported by the wall on the Madeba mosaic. As we have seen, this is destroyed in the place where Siloam should occur, but south of the Cœnaculum the wall takes a turn north-east, which it would not do were Siloam to be included. This turn in no way corresponds to the upper wall discovered by us, but strongly suggests the bend to the north-east of the scarp at the tower outside the Protestant Cemetery. This scarp thus appears to me to represent the wall described by Eucherius. When Eudocia desired to include Siloam, and hence necessarily to enclose more of the western hill, she seems to have taken advantage of the wall first mentioned as far as the tower A B C, and then, abandoning the north-easterly direction, to have made use of the lower line, on the other side of the fosse, sometimes building on the old foundations, some-

times upon the débris with which they had gradually become covered. For over 300 years, since the founding of Ælia, the place had been convenient for shooting rubbish, hence this accumulation is easily explained.

Date of Lower Wall.

According to this hypothesis, the lower wall is the one destroyed by Titus. As we would expect, this wall shows several periods. The latest work appears to be the patchwork at *f g o* (see Plate IV.), which shows a slight altering of the line. This view is confirmed by the fragments of Græco-Jewish mouldings inserted in the patchwork. This reparation was probably the one effected after the terrible destruction by Pompey, at the command of Cæsar, in 47 B.C., or it may represent the work of the Jews who repaired the walls in anticipation of the siege by Titus.

The earliest period is clearly indicated by the exquisitely dressed and jointed masonry, set without lime, which occurs *in situ* at two corners of Tower T (see specimen at *d*, Plate V.). This masonry appears to be a fragment of the first wall on this line. There is no evidence, nor is it probable, that the south line was altered between the time of Nehemiah and that of Titus. Nehemiah merely rebuilt on the old Jewish lines. Whether we assign this fine piece of masonry to Solomon or to the later Jewish kings depends upon the view we take of the relation between the lower wall and the scarp of Maudslay, which turns to the north-east at the tower A B C.*

* General Plan I.

In regard to this relation, we have shown (p. 45) that three theories are possible. If the lower wall is later, then the rock-base of the tower A B C probably represents the south-west angle of the city during Solomon's time, in which case the wall did not enclose the whole of the western hill, as the direction of the scarp beyond the tower is north-east. The lower wall would then represent an extension of the city by the later Jewish kings.

If, in the second place, the lower wall was built contemporaneously with the making of the scarp, the latter represents a citadel on the line of the city wall, surrounded by a fosse partly without and partly within the city. In this case, the south-west angle of the city during Solomon's time would fall at Tower I., and the fine work at Tower T should be ascribed to him. Militating strongly against this view is the entire absence of reference to a citadel at this point.* Had one ever existed, such an important fact would have been chronicled. True, the extension of this part of the city is not explicitly referred to, but we know the later Jewish Kings

* In this discussion we are following the view given on p. 289, that the Jebusite city as rebuilt by David occupied the eastern hill only. Josephus appears to place the citadel taken by Joab on the western hill, but he evidently has in mind the position of the upper and lower cities of his day. In his history of the later times he never mentions a citadel at this point. Those who follow his view, that the Jebusite city occupied both hills, may relegate the scarp of Maudslay to the Jebusites, and the first building of the lower wall to David, who according to this author joined the citadel to the lower city.

made various alterations in the line of wall. It might be argued that had they thus extended the city, these builders would have joined their wall immediately on to the corner B of the tower A B C, filling up the fosse instead of starting their extension from the top of the counter-scarp, thus leaving an interruption in the line of wall, as shown on Plate I. To this we would answer that they probably did so. The masonry of tower A B C probably dates from the thirteenth century, when the whole line of scarp was again used as outside city wall, and when the fosse was again cleared out for use. It is true that the portions of two masonry courses now *in situ* resemble the work characteristic of many parts of the lower line, but the stones fallen about the rock-base bear on their margins the furrowed tooling of Crusading times; and the stones of the two courses *in situ* may have been re-used from the other line.

If we abandon the citadel theory, the view that the lower wall represents an extension of the city is greatly strengthened. When the city was enlarged, the part of the scarp running north-east from the tower fell within, and the new wall was defended in part by the outer scarp (see Plate I., section I M).*

The third hypothesis, that the scarp of Maudslay is later than the lower wall, seems to be quite untenable in view of the history of the city, for the lower wall was destroyed in 70 A.D. Hadrian probably built his south wall on the line of the present city wall, and the site of the Cœnaculum

* As to Sir Charles Wilson's suggestion that the fosse may be a road, see footnote to p. 8.

was not enclosed till about the beginning of the fifth century, when a new wall was built to protect the great church. As seen above, the scarp of Maudslay appears to have been used as the base of this wall; but it seems far more probable that the Solomonic rock foundations were re-used than that these magnificent fortifications were hewn at this comparatively unimportant period. As we shall see later, the wall built by Frederick II., about the year 1239, probably also ran on this line; but in view of the fact that his work was interrupted, it is equally difficult to assign these rock foundations to him.

The lower wall, then, appears to show traces of builders from the later Jewish Kings to the insurgents at the time of Titus. In Josephus' description of this wall he places the Gate of the Essenes near the south-west angle of the city. The gate found by us at this point belongs in all its three periods to the upper wall, but it may have been built on the foundations of the Gate of the Essenes,* which probably was on the site of the Dung Gate of Nehemiah.

Date of Upper Wall.

To return to the upper wall. This we have seen was built by Eudocia about 450 A.D., who included Siloam, and probably was used for over four centuries.† The terrible vicissitudes of the seventh

* See, however, footnote to p. 8.

† This view is confirmed by the general similarity of the masonry of the upper wall to that portion of the south wall of the Haram Area which is later than Hadrian (see p. 26).

century apparently did not affect the line of walls. Arculf (670) enumerates the gates, but throws no light on the walls; but the Venerable Bede (died 735) gives us a fairly full account of the city based upon "later as well as older writers." He repeats Eucherius' statement, that Zion was included, and reproduces the first part of his description of Siloam word for word, only changing "infra muros" to "intra muros." It thus appears that he treated his quotations critically, altering them to suit present conditions. Thus, the pool at his time seems to have been enclosed by the wall of Eudocia. As Bernard the Wise (870) places the church in which St. Mary died "in the city to the south in Mount Zion," we gather that Eudocia's wall, or at least that part of it which was on the western hill, was still in use.

How much longer this wall was used is not clear, but it had been abandoned before the time of the author of the tract "Qualiter sita est Civitas Jerusalem," who wrote shortly before the coming of the Crusaders, and who places the site of St. Mary's death outside the walls.

Identification of Gate.

These four centuries, however, form a period sufficiently long to account for the changes in the south-western gate, where we find four door-sills at different levels. As this wall was built in Christian times, we can also account for the Latin *graffito* on the pilaster used in the making up below the pavement leading to the highest sill, as well as for the cross carved on one of the covers of the drain below

the street. This gate may be the one called by Arculfus the Gate Thecuitis, which the Rev. J. Rose Macpherson interprets to mean the Gate of Tekoa, identified with Khurbet Tekua', about five miles south of Bethlehem. It was clearly somewhere on the south side of the city, and he places it on the site of the present Dung Gate; but we have seen that the south wall at the time of Arculfus was probably south of the present line, and the position of the Khurbet favours our identifications.

Thirteenth-Century Wall.

During the time of the first Latin kingdom the Cœnaculum remained excluded from the city. In Chapter II. (p. 68 *et seq.*) we have described a wall enclosing the top of the western hill. From the late Byzantine moulding inserted in its foundations, as well as from its masonry, it is clear that this was built in mediæval times. We have shown that it corresponds in position to the south wall of the city found on the map of Marina Sanuto (1321 A.D.), which includes the Cœnaculum, joining the line of the present city wall near Burj el Kebrît. This wall was, apparently, in existence in 1280, and may have been built by Frederick II. in 1239. We have shown that the wall discovered by us probably made use of Maudslay's scarp, as the line we excavated is a natural continuation of that line, and as about the tower A B C stones with Crusading dressing were found fallen. Accordingly, it seems fair to assign the building of this wall to about the middle of the thirteenth century.

Date of Walls near Pool.

We have stated that the smooth-faced masonry characteristic of the upper wall—the wall of Eudocia—disappears at a point some 300 feet west of the Jewish Cemetery, while the wall emerging from the cemetery and running down to Siloam shows masonry similar to the later periods of the lower or Jewish line. As we know that Eudocia's wall included the Pool of Siloam, and that on the western hill she followed the old line, we assume that she continued to do so as far as Siloam. This old wall near the gate was fairly well preserved, and probably not much covered with débris, so that she needed only to repair it. The absence here of her characteristic masonry may be explained in one of two ways: Either in repairing the wall she used only the old fallen material, or in course of time her characteristic work has entirely disappeared. An example of this disappearance is found on the western hill. At Tower I. she built a smaller superstructure on the old foundations. Of the latter three sides are still preserved, while of Eudocia's masonry only one side and 2 or 3 feet of the face remain.

Near the gate the wall discovered by us turns to the north-west, crosses the Tyropœon below the Old Pool, and runs up Ophel. Branching off from this wall were found another wall and a scarp running along the west side of the two pools. We have shown that at the time of Hezekiah the Pool of Siloam was probably within the city. At the time of Herod it was excluded, but was again included

by Eudocia. Examining the wall crossing the valley, we find no trace of Eudocia's smooth-faced masonry, except in the repair of the north-east buttress. The earliest period of this wall is seen in the buttress system built without lime. This may date back as far as Hezekiah. During the time of Herod this wall crossing the valley was probably used simply as the dam of the Old Pool, being no loftier than such a use would demand. Whether the filling up of the spaces between the buttresses (with masonry set without lime), thus rendering the wall thicker, was effected by his time, or when the old wall was rebuilt by Eudocia, it is impossible to say, though the former view appears to me to be more probable. The wall of Herod probably ran from the gate to the point N² (see General Plan II.), where it formed a corner, running along the line of wall and scarp traced by us as far as the blockage, where it may have crossed the valley, bending back south along the high cliff to a point above the corner of the Old Pool, where, joining the old line, it turned again to the north. This wall on the cliff has entirely disappeared, as proved by our examination (p. 173). This view corresponds with the description of Josephus, who says that after bending above the Pool of Siloam the wall bent again to the north at Solomon's Pool, which we would identify with the Old Pool. It is quite possible that this line may have been in use before Hezekiah threw the wall across the valley to enclose the site of the two pools. Thus, the two walls may have existed at the same time; and we arrive at some explanation

of the following passages, "Ye made also a ditch between the two walls for the water of the Old Pool" (Isa. xxii. 11),* and, "The men of war fled by night by the way of the gate between two walls which is beside the King's garden" (2 Kings xxv. 4). Referring to this escape, Josephus says that they fled by the "fortified ditch," which may refer to this wall below the Old Pool, called by Nehemiah "the wall of the Pool of Siloah."

A few signs of Eudocia's work appear on the north-east buttress, but we have noticed its absence elsewhere from the wall crossing the valley. In view of the facts that this wall was used as a dam during the time of Herod, and that it is now ruined down some 25 feet below the level of the height required by such a dam, this absence of Eudocia's masonry is easily explained. For the actual state of the remains accounts not only for the entire ruin of her wall, but for a large part of Herod's dam wall as well.

Fountain Gate.

As the masonry of the wall near the gate belongs to the lower wall, the gate appears to be the Fountain Gate of Nehemiah, mentioned immediately before the wall of the Pool of Siloah. The lower sill belongs probably to the later Jewish Kings, and

* The word used in the original, מִקְוֵה (translated in the Revised Version 'reservoir'), is employed in the Bible for a place where waters flow together, and would thus be applicable to the Old Pool of our map, which finally receives the waters which flow through the Siloam tunnel, as well as surface drainage.

perhaps the setting back of the gate during what we call its second period was due to Eudocia. The tower near the gate, which was added on to the wall, is later than the Roman baths to the south (see p. 96), and probably belongs to the Christian period. As we gather from Bede that Eudocia's wall appears to have been still in use in the eighth century, the third period of the gate may be accounted for.

After tracing the wall across the valley and up on to the south end of Ophel, we lost the clue, but we have shown that it probably ran along the east slope of the hill, on to the scarp above the Virgin's Fountain, joining Warren's Ophel wall. Here again we have a lower and an upper wall, and in the latter we have observed (p. 129) a marked resemblance to Eudocia's wall, not only in the masonry, but in the disposition of the small towers. The lower wall also shows signs of two distinct periods at the large tower, which may be accounted for by the changes made here by the various Jewish Kings, the Maccabees, etc.

Our chronological scheme thus far has been derived from the hypothesis that the débris which separates the upper wall from the lower along a considerable length on the western hill represents the period between the time of Titus and that of Eudocia, when no city wall ran along this line. We have stated that our argument was to be based upon two fixed points: first, this débris; second, the church discovered at the Pool of Siloam. We may now consider the latter, thus approaching the

question of the wall from an independent point of view.

Another Key to the Chronology.

The church is much later than the stairway leading to the arcaded Pool of Siloam, as it is built upon part of this stairway, whose steps are polished by long use. This stairway forms part of a branch from the main street running down the Tyropœon, and terminating at the gate in the city wall south of the Old Pool. Hence this wall must be much earlier than the church. We have given reasons for our holding the view that Eudocia built the church. The gate and city wall must then have existed long before her time, though she rebuilt the wall on the same line. Before her rebuilding, however, the city wall had not run down to Siloam since the destruction by Titus. Accordingly, this gate must occupy the position of a gate in 70 A.D. This view is strengthened by a consideration of the paved street, which seems to be identical with the lower pavement found by Warren on the west side of the Haram, between Barclay's Gate and the south-west angle, which appears to represent a street once running under Robinson's Arch. In either case we have paving stones of immense size, a kerb, and man-holes, whose heads project above the street level, leading down to a channel below. On the pavement near the Haram, Warren found voussoirs fallen from the bridge represented by Robinson's Arch, which, as is suggested in the Jerusalem volume (p. 183), probably was destroyed at the time

of Titus. The pavement, then, is at least as old as the Herodian period. Hence, assuming its identity with the street discovered by us, not only the latter, but the gate to which it leads, must date at least as far back as Herod.

Thus, if we attribute the church to Eudocia, we are brought to the conclusion regarding the lower wall to which we were led by a consideration of the débris between the walls on the western hill.

Date of Pool.

The arcaded pool, together with the stairway leading down to it, appear to be of the same date with the street. Mr. Dickie has shown that the wall-head mouldings of the pool arcade may date from the Herodian period. As the wall in the time of Herod probably crossed the valley above the pool, the branch leading to the pool from the main street must have passed through a gate which may have once existed at a point now occupied by the later blockage at the top of the "inferred steps" marked on Plate XV. The whole of the main street, however, would have been within the city.

If, on the other hand, the church be ascribed to Justinian, it is possible, though not necessary, to date the street, wall, and gate no further back than Eudocia. In favour of this view might be urged the resemblance between the paved street in the Tyropœon and the one on the western hill leading to the gate near the south-west angle of the city. This gate, as it now remains, dates in its earliest period from Eudocia, but it probably occupies the

site of the Herodian Gate of the Essenes. The street, then, may be an ancient one, re-used by Eudocia.

Again, it might be argued that the arcaded pool was constructed by Hadrian, and connected with the city by a paved street, the branch leading to the Siloam Gate having been added on by Eudocia when she extended the walls. Against this is the improbability of Hadrian's laying down such a finely paved street so far beyond the walls of the city.

Isolated Tower on Western Hill.

We have still to consider the chronology of various discoveries on the western hill. Among the most interesting of these is the large tower around which the aqueduct bends, as described on p. 57. The tower itself furnishes no indication of its age beyond the broken tiles embedded in the solid filling within its walls, which show that it was used in Roman times or later. A consideration of the remains in the vicinity, however, throws some light on the matter. Immediately to the north of the tower is a mosaic chamber, whose flooring is crossed by a later drain. This drain, in turn, was apparently cut off when the tower was built. Accordingly, the order of construction appears to be: (1) mosaic, (2) drain, (3) tower. The mosaic can hardly be older than the middle of the first century B.C. The section of drain seen here seems to be connected with the one in the same line to the south, which was cut off when the upper wall was built, but which runs over the ruined foundations of

the lower wall. The drain here thus belongs to a period between Titus and Eudocia, and may have been constructed by Hadrian. As the tower interposes an obstacle in the course of this drain, the former must then be later, and may have been built after its site was enclosed by the wall of Eudocia, as the lower part of the drain was clearly no longer used at that time. This appears to me to be the more probable view.

An argument, however, in favour of the greater antiquity of the tower might be advanced, assuming that there is no connection between these two bits of drain, and based upon a consideration of the curious bend of the ancient aqueduct. This may have been due either to a desire to avoid the tower, or to avoid the rock-hewn chambers over which the tower was built. If it was meant to avoid the chambers (which are supposed to have been in use in the earliest times), then it may be very old, perhaps the work of Solomon, to whom tradition ascribes the construction of an aqueduct on this hill. If the bend, however, was made around the already existing tower, it might be argued that the aqueduct was constructed by Pontius Pilate, whose work of bringing water to the city caused such a tumult among the Jews. But to hold this view it would be necessary to crowd into less than a century the building of the mosaic chamber, its destruction, the construction of the drain, its abandonment, the building of the Great Tower, and the making of the aqueduct. This seems to be too rapid a succession of events even for a city of such vicissitudes as

Jerusalem. To place the aqueduct later than Pilate seems improbable, as it is older than the low-level aqueduct, which makes use of it at one point at least. Moreover, the minor variations in the bend cannot be accounted for by the tower, and may have been due to some unknown features of the rock-dwellings.

Drainage System.

While the drain described above appears to have existed in the time of Hadrian, it is possible that only the southern part was built in his time, the part north of the tower being older. This view rests on the hypothesis that the bit of drain that is cut off by the extension of Tower T during its third period is a branch of the northern drain. Tower T belongs to the lower wall destroyed by Titus; hence, at any rate, we have signs of a drainage system dating back as far as the first century A.D. The drain running under the gate was used in Christian times, but how ancient it may be it is impossible to say. We have shown that the paved street in the Tyropœon probably dates before the destruction by Titus, though it was used in Christian times. The two streets discovered on the western hill are similar in construction to each other and to the one in the valley. They are both found beyond the limits of Hadrian's city. The one leading to the gate was certainly *used* at the time of Eudocia, and probably much later, as we gather from the four door-sills.

Having set forth the method by which I have worked out the above results, I may now, for the

sake of clearness, recapitulate these in their chronological order. In other words, we may again run briefly through the various periods of the history of the city, and see how far these may have been illustrated by our discoveries.

Recapitulation.

1. *Jebusite Period.*—To this may be assigned the various rock-cut dwellings which we have found on both the western and eastern hills.

2. *Solomonic Period.*—To this appears to belong the scarp of Maudslay, with the rock-hewn base of the tower discovered by us on the same line, the fosse, and counter-scarp. The line of wall on the western hill during his time, indicated on Plan No. 1, Plate XXIX., is based upon this scarp; the rest of the line is hypothetical. The aqueduct traced by Warren and ourselves on the western hill may also be the work of Solomon.

3. *Period of the Later Jewish Kingdom.*—The line of the lower wall probably represents the extension of the city during this time, so as to include the rest of the western hill, the site of the two pools, and the whole of the eastern hill. The original masonry is found in the first period of Tower T, and perhaps also in the buttressed wall crossing the Tyropœon below the Old Pool. The walls of the Pool of Siloam, as far as they are rock-hewn, and the rock-cut steps leading down to it, may perhaps be ascribed to Hezekiah. The scarp to the west of the two pools may also be his work. For the line of wall in his time, see Plan 2, Plate XXIX.

4. *The Herodian Period.*—Probably most of the masonry now *in situ* in the lower wall dates from the time when the wall was rebuilt after the destruction by Pompey, though parts of it may go back as far as the reparation by Nehemiah. The first period shown in the remains of the Siloam Gate probably dates from one of these two rebuildings. The scarp to the west of the pools, together with the partially scarped cliff to the east, were probably used as the base of the wall, which made a bend here, and the masonry found on the west scarp may be part of the wall (see Plan 3, Plate XXIX.). The arcade around the pool was probably constructed in Herod's time, together with the built stairway connecting it with the street, which was also his work. During this period the wall below the Old Pool was probably in use merely as a dam. The paved streets on the western hill and the mosaic north of the aqueduct appear to date from this time.

5. *Period of Hadrian.*—As his wall ran near the line of the present south wall, no traces were seen in our excavations. The drain cut off by the foundations of the upper wall may be ascribed to him, as well as the baths found south of the pool. Signs of extramural villas of his time are probably indicated by some of the numerous house walls and mosaic fragments found by us.

6. *Early Christian Period.*—To this belongs the upper wall, the gate on the western hill with its four sills, the second period of the Siloam Gate, the remains of houses lining the street in the Tyropœon,

the church above the pool, the church on the Mount of Olives, the mosaic north of the Damascus Gate, the tombs found west of the Virgin's Tomb, the tombs at Sûr Bâhir, probably also the isolated tower on the western hill, etc.

7. *Latin Period.*—Our excavations revealed no distinct traces of the earlier Moslem dominion or of the earlier Crusading period, but we have shown that the late wall on the western hill was probably built by Frederick II.

CHAPTER X.

STORY OF THE EXPEDITION.

Terms of permit—Our first camp—The workmen—A suspicious pot—Immunity from accident—Mining methods—How a gate was found—Visitors—Filling in the excavations—The vegetable question—Recovery of a lost clue—Spring season, 1895—The Siloam gateway—Work in the valley—A visit to the tunnels—An exciting excavation—Underground discomforts—Winter storms—An unfortunate season—The late foreman—The late Commissioner—The new foreman—Expiration of permit—Extension of permit—Land complications—The surprises of excavation—Season of 1897—Close of work.

TERMS OF PERMIT.

ON April 25, 1894, while working in my room at the hotel in Jerusalem, I received a note from Mr. Dickson, the British Consul, informing me that the permit for the excavations by the Palestine Exploration Fund had arrived from Constantinople. As I had been waiting for it in the Holy City for two months, the news was indeed joyful. With our application we had submitted a plan of Jerusalem, around which we had drawn a line at a consider-

able distance from the walls, asking permission to excavate between that line and the walls. This was accorded, with the provision that at each point where we might desire to dig the local authorities should certify that there was no risk to sacred or military buildings. All finds were to go to the Imperial Museum at Constantinople. This permit was good for two years, beginning May 13—that is, May 1 Old Style. Actual work was begun on May 23, a few days having been taken up with the appointment and confirmation of Ibrahim Effendi as Imperial Commissioner, and with the appointment of a committee from the Council to visit the field of proposed excavations, and decide whether it came within the terms of our permit. This report was favourable.

Our First Camp.

Immediately outside the Protestant Cemetery there is a small level platform of ground dotted with a few olive-trees. This was a capital place for our tents, within a few yards of the work. It was a quiet little corner, away from the road, protected on one side by the cemetery and the high scarp, and on the other by the steep fall to the Valley of Hinnom. To the east we could see the great Russian tower on the Mount of Olives, while to the south were the ever-changing mountains of Moab. We almost always had a breeze, even when the air was quite still in the town; when there was a breeze in the town, it became a hurricane with us.

The Workmen.

We began with eight men and boys, but these were soon increased to twenty. During subsequent seasons the average was often thirty-five, while sometimes the number employed was over fifty. The workmen were almost exclusively from Silwân, and two or three of them had excavated under Sir Charles Warren. Each shaft had its head, who wielded the pick, and was responsible for his fellow-labourers. These men grew wonderfully interested in the work. When an important clue was struck, their energy redoubled; while an unprofitable tunnel produced a visible falling in their spirits. Several of them showed both daring and skill in mining, working quite cheerfully through the most insecure débris. Discipline was easily maintained under the watchful eye of Abu Selim, who had been with me at Tell-el-Hesy, and who died while in our service. The work began soon after sunrise, and continued till half an hour before sunset, with an interval of half an hour for breakfast, and of about an hour for lunch. Counting men and boys, the wages averaged about a shilling a day.

A Suspicious-looking Pot.

The plot of land outside the cemetery belongs to the sheikhs of Neby Daûd, with whom our relations were most friendly, thanks to the diplomatic resources of Ibrahim Effendi. They, however, appointed one of their number to remain at the works to see whether we unearthed buried treasure. In

GROUP OF WORKMEN.
(From photo by Mr. C. Hornstein.)

time he got tired of his job, but during the very first week we dug up a jar which contained half a dozen copper coins. Down swooped a score of lads in great excitement, who were so much in the way that I told Abu Selim to cover up the jar again, and we would postpone its examination. In the evening I was visited by a solemn deputation in my sleeping-tent, to inquire into the matter. The chief declared that it was rumoured in town that I had found a pot of gold. I assured him of the facts. "But why," said he, "did you cover up the jar till the work was over?"

Immunity from Accident.

The clearance some 20 feet cube about the rock-base of the tower was exceedingly difficult, owing to the numerous large stones fallen from the tower. The inconvenience to us was balanced by the delight of the landowners in obtaining such splendid building material. I may say at once that during our three years' work of burrowing in the soil of the ancient city we never had an accident, but at this spot Abu Selim narrowly escaped a serious one. Climbing up out of this hole at the side of the tower, his foot slipped. He clutched at the débris, and to my horror I saw him plunging down the hole in a shower of stones and dust. How he escaped without injury is a marvel to me to this day.

Mining Methods.

Our first tunnel was driven along the outer scarp, which we traced for 300 feet. Wishing to err on

the safe side, I began by boxing up every inch of the way. In the meantime, the long tunnel had been approached by new shafts, and the first half remained unused. Requiring to shore up our advance work, we began to remove frames here and there from the abandoned tunnel, which I visited every day to see whether any caving in had occurred. Encouraged by its intact condition, we removed more and more, till finally very few boxes remained. The tunnel, however, remained perfectly secure till it was finally closed up. By such experiments we gradually learned to know through what débris we could drive galleries without employing frames. When the soil was firm and compact, the men made a natural arch in the tunnel roof. Such a gallery was driven north from the gate. This was left open, and visiting it a year and a half after it had been excavated, I found it practically unchanged. In excavating the church at the Pool of Siloam, we honeycombed the ground; but frames were almost entirely dispensed with. On the other hand, while tracing the Valley Street, which was blocked by fallen houses, frames had to be employed along most of its length.

How a Gate was found.

The finding of the south-western gate was somewhat romantic. In one of our trial shafts we had struck a rock-hewn channel. I wished to see whether this was connected with the aqueduct traced by Warren further east, and began to clear it out.

It was only 2 feet wide, and after we had proceeded some distance the air became exhausted, and it was necessary to open another shaft. The operation was several times repeated, until the channel was connected with the open air by seven shafts. Pushing inside the channel to the road, we found that it had nothing to do with Warren's aqueduct, but was simply a drain ; but in the meantime an examination of the shafts sunk to reach it flashed a new light upon me At every point the flagstones which covered the drain extended in a pavement on one side, and sometimes on both. At first, when this pavement had appeared at only one or two points, I had thought little of it, assigning it to houses at these points ; but when it had appeared in five places all in a line, all above the drain, some explanation was necessary. Then these questions crowded themselves upon me : Is this a paved street above the drain? If a street, should it not lead to a wall? If to a wall, must it not be also to a gate? Immediately I began to act on this new clue. The pavement was followed continuously in a tunnel above the drain, driven towards the west, for 75 feet, where it was ruined ; but only 10 or 15 feet beyond it was recovered, just at the point where it passed through a gate in the long-sought-for city wall. At the point where the drain passes below the gate, its sides were seen to be, not rock, but well-chiselled slabs of stone. These were observed before we noticed the paved street, and at the time Abu Selim declared that they pointed to some important feature above. Had I followed his

suggestion, the discovery of the gate would have been made all the sooner.

The excavation of the gate, with its superimposed sills, was a delicate affair, the problem being to examine all its features, and yet to destroy none of the remains. A large hole opening to the air was made around it, and a temporary flight of steps was constructed for the convenience of visitors. The sketch on p. 17 was made by Mr. Dickie from two photographs taken from above. At the request of the proprietors, the place was left open, but since then much rubbish has fallen into the hole.

Visitors.

On the whole, that first summer was very favourable for work, as the heat was not intense. For six weeks my sister and niece joined the camp, having their tent under the shade of the olive-trees. They assisted in the entertainment of the visitors, who were numerous and various. As these came late in the afternoon, sometimes I did not get away from the camp for days together. Dr. Schick often favoured us with a call. The Dominican Fathers of St. Étienne followed every step of the work with the keenest interest. The Greek Patriarch, the military Pasha, the various consuls, were among the guests. To write a report in my tent, pitched so near the work, to which I might be called any moment, was not an easy task. A plunge into the bowels of the earth would often intervene between the beginning and the end of a sentence. If the tent was closed, it was too hot to write ; if open, the

papers flew all about. When my first long report was finished in September, we left the tents for a few days. In the meantime a small cyclone swept over the city, and caused a good deal of damage to the tents. When these were repaired, we moved the camp to a more sheltered spot, further along the line of wall that we were tracing.

Filling in the Excavations.

By this time we had measured up all the work done near the cemetery, and it was necessary to restore the ground to its former condition. This was somewhat difficult. The proprietors had taken away a good deal of the earth which we had dug up; they wished to keep for building purposes the large stones, and yet they objected to the immense hole about the tower, from which these stones had come. They had been so friendly during our long stay that we were willing to accommodate them. Fortunately, the tower was covered with a heap of débris, which was easily raked down into the hole. The splendid rock-base was again covered up, all but 3 or 4 feet, which, together with the two courses of masonry, may still be seen above ground. The gate and some cisterns were left open, but all the tunnels connected with the street, scarp, and a large part of the wall, were closed. Indeed, I regret that the hole about the gate was not filled in. I fear that in time these four door-sills, instead of remaining as a precious testimony to the history of the city, may be torn up, and used as the door-sills of four modern houses. The soil is the best museum,

unless, as in the case of the wall we left uncovered in the land of the Augustinians and of the gate at Siloam, which was bought by the Greeks, we can leave our discoveries with responsible curators.

The Vegetable Question.

Our wall had now been pushed to the road leading from the Zion Gate to the Hinnom Valley, the limit of the property of the Neby Daûd sheikhs. The large field across the road belonged to a Moslem of the city. With this gentleman we failed to come to terms, and after one day's work, in which, however, we picked up the wall at two points along a line 100 feet in length, we were obliged to transfer operations to a cauliflower plot further on. Up to this time crops had troubled us very little, but as we approached Siloam the matter of vegetables became a serious one. It is one thing to buy cauliflower in the market, and another to buy it when it is nourished by the débris that covers an ancient wall. Hassan knows that ordinary vegetables are not what we are after ; only his particular archæological vegetables will suit us, and the price goes up accordingly. It is the same with artichokes, lentils, lettuce, all of which delight to grow upon buried monuments. It is a simple matter to arrange for the few cauliflower plants that grow on the site of a shaft, but when we must allow for the place to deposit the earth and stones from a long tunnel, for a path to the mouth of the shaft, and for damage done by visitors to the excavations, the vegetable question looms large. The matter

was sometimes further complicated when the vegetable-owner was quite a different man from the landowner, and so we were involved in two distinct negotiations.

Recovery of a Lost Clue.

By the middle of December we were confronted with a serious difficulty. Following the line indicated by the two bits of masonry we had found in Naboth's Vineyard—a name I applied to the forbidden plot of land belonging to the gentleman who was later to become one of our best friends—we picked up the wall under the cauliflower, and traced it eastwards to the Jewish Cemetery. Here excavation was manifestly impossible. The rains were coming on, and I feared that I should have to close the season with a lost clue. The point was critical, for, assuming that the wall was to make a bend north of the Pool of Siloam, according to the description of Josephus, I saw that a change of direction might possibly be expected at some point within the cemetery. I knew that by making a trench outside to the east, at right angles to the direction of the wall as it enters the cemetery, we must eventually strike it again, unless, indeed, the wall happened to be entirely ruined at this point, a state of things which was quite on the cards. But such a trench would have to be 450 feet long, and might pass through the lands of a dozen different proprietors, planted with an alarming variety of vegetables. Accordingly, I decided to work upon the simplest assumption, that the wall did not change

its direction, but came out of the cemetery on the same line in which it entered. So I made a trench across the desired spot immediately outside the cemetery, and within three days the wall appeared. There it was, undoubtedly the same wall, with the same masonry, the same thickness, the same general characteristics shown by the wall before. The clue being recovered, I was able to take my holiday with a quiet mind, which I would not have had if I had felt that the wall was still hiding from me under those Jewish graves.

During the last half of December the storms allowed us to work only eight days, so we closed on the 31st. In the meantime, at the request of Hamdy Bey, I had conducted the excavation on the Mount of Olives which resulted in the discovery of the Byzantine church.

Spring Season, 1895.

By the end of February I was back in Jerusalem, but the Committee had authorized me to take a trip across the Jordan, before beginning the spring season. The results of this trip are published in the *Quarterly Statement* for July, 1895. We visited Madeba, Kerak, Mashetta, 'Amman, and other places, copying new inscriptions, and discovering some interesting ruins, unnoticed before. The expedition occupied the month of March, during which excavation would have been impossible in Jerusalem, owing to the incessant rains. A delightful surprise awaited me, for on my return I found Mr. Dickie, who had been appointed, without

my knowledge, as architect to the excavations, and to assist in the general work. We were soon in our new camp in a hollow of the western hill, within the walls of the Augustinian property. The kindness of the Père Germer-Durand was unfailing. He gave us carte-blanche to excavate in the extensive lands of his Order, promising to preserve all buildings that we might find. The tents were pitched immediately above some interesting rock-chambers, and bits of mosaic flooring were all about us. The air was vocal with the cries of the Siloam peasants, scattered at work over the Tyropœon Valley, planting the cauliflower which we were doomed to buy. The view was charming, comprising the richly-coloured south wall of the Haram, the whole of the olive-dotted hill of Ophel, the gleaming houses of the village of Siloam, clinging on the steep hillside, and the long range of Olivet.

The Siloam Gateway.

Picking up the clue that was awaiting us, we traced the wall on to an exposed cliff, which extends some 100 yards. Immediately beyond these our search was unsuccessful, as the soil was slight, and had been plainly overturned recently down to the rock. The clue, however, was soon picked up near the Siloam Gate. This gate is a most interesting example of the chances of excavation. The half of it has been entirely removed for building stone. Had the Fellahîn pushed their search a little further, they would have discovered the splendid piece of wall running north-east, which, together with the

rest of the gate, might have entirely disappeared. Fortunately, the Greeks of the convent, interested in our discovery, have bought the property, and so these precious remains will be conserved. Entrance to these excavations is from the side of a slope; hence it is easy of access to travellers, many of whom visited it under our guidance. As the exact spot is marked on General Plan II., readers of this volume who visit Jerusalem may easily find it. A little brushing away of dust will reveal the various sockets marked on the plan.

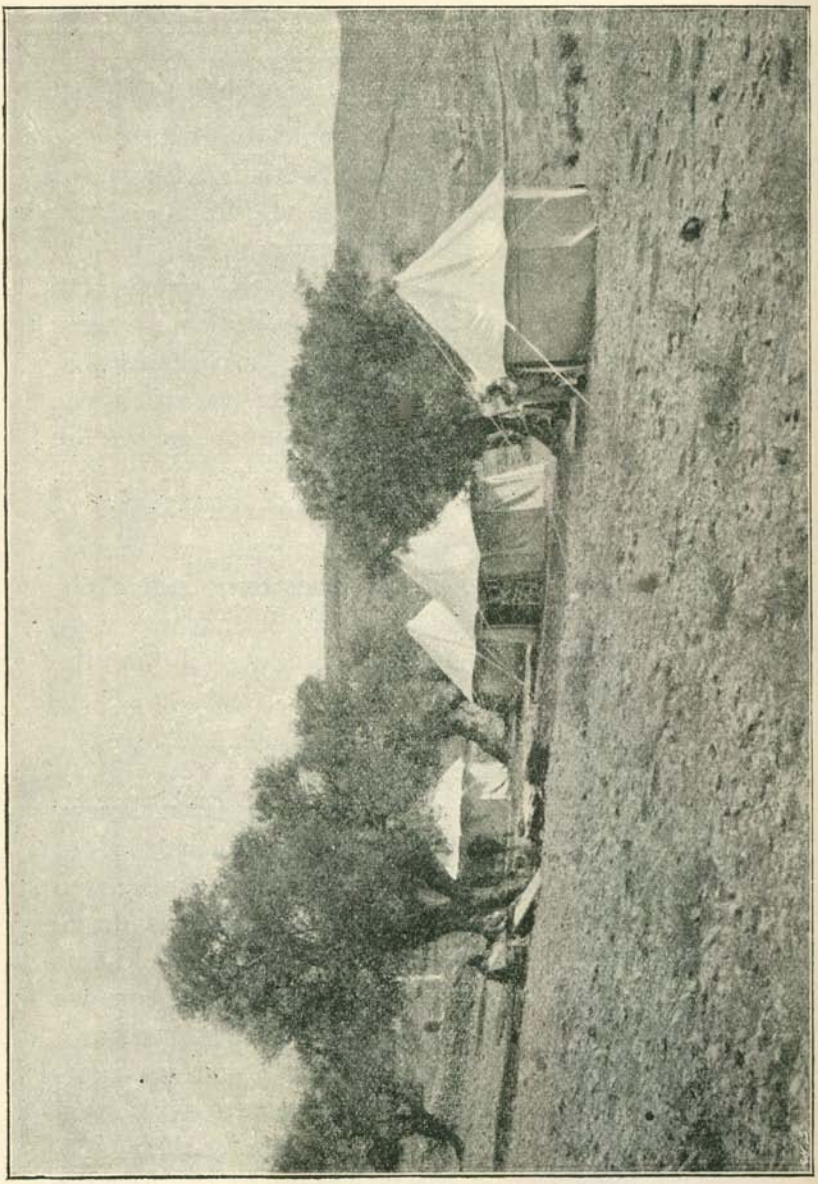
Work in the Valley.

During the last part of May fierce heat prevailed; the valley became intolerable, and the camp, sheltered by the hollow, was scarcely better. A serious illness caused me to leave for my home in Beyrout, where I remained for six weeks. For half that time the work was carried on by Mr. Dickie, but, owing to the ill-health of Abu Selim, it had to be suspended for three weeks. The work was resumed a few days before my return, when I was taken through the baths below the gate, discovered in my absence. We now undertook one of the most difficult jobs we ever had—the tracing of the wall which crosses the valley. The true face of this wall was hidden by a retaining wall of closely-packed stones, held together by a natural cement. Our work, thus, was one of quarrying rather than of simple excavating. One shaft here was 45 feet deep, and for 23 of these we were slowly working our way down through this packing. The man and the

boys at the top of the shaft had an easy time, as sometimes the quarryman laboured long before he could extract some huge stone, which then had to be broken to pieces before it could be hauled up. When at last the bottom of this packing was reached, the conditions were hardly improved, for the soil was impregnated with sewage from the Old Pool—that black and deadly reservoir—and for the last two days before the rock was struck we were working in water. Buckets came into requisition, and girls with water-skins flocked to catch the precious fluid as it was poured out at the top of the shaft, that they might water their plots of lettuce. We were all glad to leave the noxious valley to return to Naboth's Vineyard, for owing to the intervention of a friend of the Moslem gentleman's, who was at the same time my friend, we were accorded permission to excavate at will in the longed-for spot.

A Visit to the Tunnels.

So once again our camp was in a fine breezy position near the top of the hill, beyond the modern city walls, but just within the ancient lines; and here we remained until the December rains drove us up to the Grand New Hotel. This field was indeed the repository of precious things, for here we recovered the double line of wall, which served as a key to all our excavations. On the surface, however, appeared nothing but a few shafts, with ever-increasing piles of earth and stones by their side. Peering down a shaft, the visitor might see first the



CAMP ON WESTERN HILL.
(*From photo by Rev. A. E. Beckton.*)

smooth-faced masonry of the upper wall, then its rubble foundations, then the débris on which it rested, then the lower wall, and last of all the rock, 40 feet below the surface. If he ventured to be let down with a rope, he could pause halfway and visit the higher set of galleries driven around the towers of the upper wall, noticing how cleverly the active 'Isa—one of Warren's excavators—boxed his tunnel, stepping it down box by box as the base of the wall fell, neatly turning the corner at an angle of a tower. Then, if he wished to descend still further, he could visit the back-wall of the lower system, watching 'Abdullah break up the great stones that blocked his tunnel; explore the projecting chambers, shuddering perhaps at some lofty cavernous spaces, which, however, were perfectly safe, as the loose débris had all been removed, leaving a natural vault of closely-locked stones overhead; he could wander about the three sides of the large tower T, verifying its three distinct periods, and watching how Ahmed drove his tunnel sharply uphill along its west side, stepping nimbly out of the way of the rolling stones. I should add, however, that the whole system could not have been explored at one time, for it was convenient, after clearing out and measuring one partition, for example, of the chamber system, to fill it up with earth from another gallery. Indeed, there was one time when most of our workmen were underground, and a passer-by might have supposed that no work was going on. However, that a quantity of stone found its way to the surface will appear when I say that, using only part of the stones

exhumed, the proprietor was able to construct a wall to his premises 150 feet long, 4 feet high, and 4½ feet thick. The scientific description of this excavation gives no idea of the labour expended in attaining the results. The reader must look between the lines. He must note that a brief sentence like the following, "A vain but thorough search was made along the back-wall for doors to the chambers," indicates a tunnel 25 feet long. The length of shafts and galleries employed in this excavation alone amounts to over a quarter of a mile.

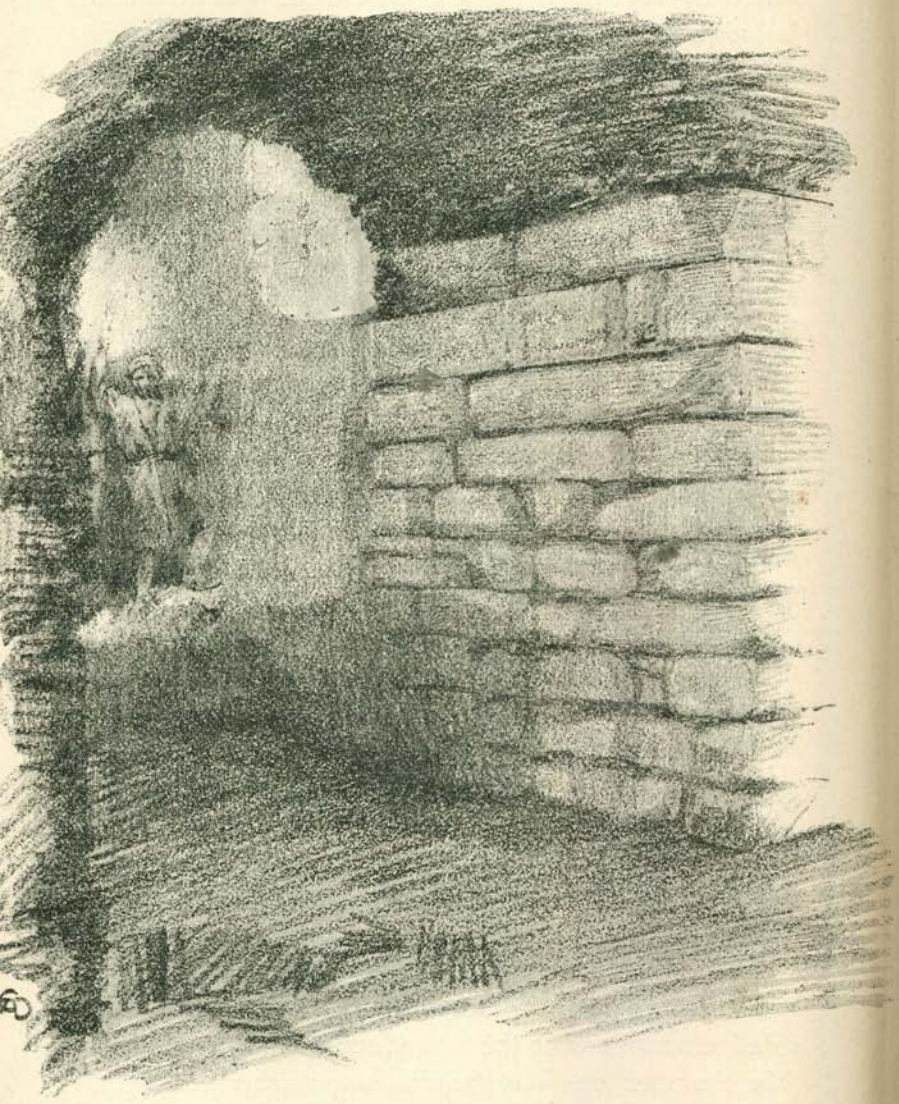
An Exciting Excavation.

This, of course, does not include the long tunnel A—B driven north from the wall. While engaged in this work, we came upon what remains the great mystery of the excavations, the tower built immediately north of the aqueduct. When I found that this tower had walls from 14 to 16 feet thick, enclosing a room only 25 feet square, when I noticed that this room was solidly filled with a stone packing, when on breaking through this packing it was proved to be built down into an ancient rock-hewn chamber, then I confess I had a thrill of excitement. Though I was inclined to the opinion which I have since adopted, that the City of David was on the eastern hill, yet I always bore in mind that the more orthodox view, placing it on the western hill, might be correct. At any rate, I was bound to recognise the hypothesis. The sepulchres of David were in his city. Josephus tells us that Herod the Great, tempted by the story of treasure

taken by Hyrcanus from these tombs, opened them by night, cautiously, secretly, and entered with his faithful friends only ; but a flame burst out from the sacred spot, and two of his guards were slain. Filled with terror, Herod scrambled out, and in memory of his fright erected at the mouth of the sepulchre a propitiatory monument of white stone. Well, here, not far from the site accepted by many as the Tomb of David, was a monument, a tower having no connection with a city wall, built with the apparent intention of concealing a rock-hewn chamber! The clearing out of this chamber was watched by us from hour to hour ; eagerly the walls were searched, in hopes of finding some passages ; the floor was carefully sounded ; the set-stone filling made the excavation difficult, but every expedient was used to render the search thorough. The excitement continued for several days, and the disappointment was proportionately keen when we were forced to decide that the tower chanced to be built over a spot where ordinary rock-hewn chambers occurred, in no wise differing from many other chambers on this western hill. I have referred to the incident, because it forms a vivid chapter in the inner history of the excavations.

Underground Discomforts.

I have reason to remember with gratitude the small chamber over the aqueduct. I was exploring this chamber one day, having approached it from a tunnel along the west side of the tower, and was crawling along at full length, as it was here very



TOWER AND SCARP AT FOUNTAIN GATE.

much contracted, followed by a small boy with the tape. We were 150 feet from the air-supply, in a line of many turnings, and the air was being breathed by numerous men and boys in the tunnel. I found myself much exhausted by the heat and bad ventilation, and was wondering how I should get back, as it was impossible to turn, when suddenly the roof of the tunnel vanished, and above me I saw what appeared at the time to be a lofty masonry chamber, quite free from rubbish.* Here I was able to rest while the lad went back for a jug of water, and, refreshed by a douche, I was soon able to crawl out into the open air again. This experience was not amusing, but I have often laughed to find myself half lying on my back at the bottom of a drain, trying to control the wobblings of the prismatic compass, while one eye was fixed upon the distant candle, held by a boy at some bend of the channel. Artistic work undertaken underground is distinctly trying. The mosaic north of the tower was approached from the bottom of a shaft by a tunnel some 55 feet long, running uphill. The coloured drawing was made by Mr. Dickie on a cold, rainy day, but the atmosphere of the tunnel resembled that of a Turkish bath. To sit for hours on the floor of a gloomy vault, the air growing thicker all the time, as the four or five candles, set in bottles, burned lower and lower—these are not the most inspiring conditions of artistic work.

* See p. 55.

Winter Storms.

Just as we were completing the section A—B we struck the late wall, crowning the top of the western hill. To trace this wall required fresh land negotiations, and these turned out to be complicated. The chief of a considerable clan gave us his cordial permission to excavate, but during his absence in town his relatives would turn up and attempt to stop the work. In this they did not succeed, but when a blind man came and encamped at the mouth of the shaft, demanding compensation, we decided to call the clan together and to come to definite terms, which should include exemption from the visits of the afflicted gentleman. After this matters went more smoothly, but as the wall appeared to be pointing to the property of the friendly Augustinians, I determined, notwithstanding the bad weather, to settle all points in regard to the wall in the land of the large clan, rather than to risk a return upon their dubious hospitality in the spring. The main features were quite clear on January 2, and we then needed only six or seven days' work to complete the detailed proof. But how to secure these days? Night after night the sky promised to clear, and morning after morning the descending torrents filled us with chagrin. Now and then we snatched a day's work, or were thankful for even a half-day's work. While the Fellahîn can stand any amount of heat, they seem to be quite paralyzed by the cold. On Saturday morning, January 11, we were still looking for the last link—a corner of the angle tower. At noon

the weather was so bad that I told Abu Selim to stop the works, but he pleaded for a few more hours. At two a messenger came to the hotel announcing that there were signs of the corner. At 2.10 came another announcing that it had been found. A few minutes after Mr. Dickie and I were on the ground verifying the good news.

An Unfortunate Season.

The next season began with a series of misfortunes which continued for many weeks. The few hours' work for which Abu Selim had pleaded on that wild January day were to be his last days of excavation. Hardly had we returned from Beyrout, when he was attacked with pneumonia. For about a week he lay ill in the little Siloam house we had hired for storing our plant, and on Sunday, March 29, 1896, he died. He was carried to the grave by our own workmen, and lies buried in the Protestant Cemetery on the western hill, within a few yards of the spot where he had so faithfully superintended our excavations.

The Late Foreman.

Yusif Abu Selim Khazin came from that sturdy Lebanon stock (I do not know whether to call it peasant or yeoman) that has produced most of the Syrians who are now taking so prominent a part in Egypt and elsewhere as physicians, editors, and lawyers. Unfortunately, he had not the advantage of a thorough early education. For almost twenty years he was associated with my family, and when I was appointed to the work of the Fund my first

thought was that Yusif was the man to help me. And for five years he was my helper in many ways. In managing the workmen he combined firmness with kindness, with the result that he got the very best out of them. He was strictly impartial, and I have heard him say: "I would dismiss my own brother if his work were not up to the mark." He was known to all the people of Siloam, where, as a peacemaker, he had the best possible influence, and after a long, hard day of work he would sometimes spend an hour with a sick man. In the organization of an expedition he was in his element, showing true economy. But the quality of peculiar value to us was his remarkable archæological instinct. Several times his quick observation picked up a lost clue, or explained the connection of bits of walling, before I had made anything out of the matter. He spent much of his spare time either in reading Nehemiah or in wandering over the fields, studying exposed scarps and the contour of the land, planning for work ahead. In the work of mining he was daring, and inspired confidence in a timid workman just by the reassuring sound of his voice. His eye was almost unerring. When, at the end of a long twisting tunnel, the air had become so bad that it was necessary for us to open a new shaft from above, with no aid but a tape and his eye he would pick out the exact spot, verifying it by pounding the ground, and getting the men below in the tunnel to do the same. Our angles, taken carefully below and above, would bring us to the same spot, much to his quiet triumph. With the landowners he showed tact and diplomacy,

always leaving them good-natured when the bargain was closed. "Abu Selim is a magician," said one of them; "we can't resist him." But with all his cleverness he was always respectful, always modest. His piety was simple and genuine, and the manner in which he tried to live up to his standards commanded respect.

The Late Commissioner.

Hardly had we begun to realize the loss of our foreman, when another blow fell. As we were lunching in our camp on April 16, a messenger came to announce that Ibrahim Effendi, who had visited the excavation only the day before in the best of spirits, and apparently in good health, had been found dead in his bed. The doctor pronounced it aneurism of the heart. He had spent the evening with his family, and retired without complaining of any illness.

Ibrahim Effendi belonged to that noble family of the Khaldi who have lived in Jerusalem since the days of Khalid, their great ancestor. He was not much over fifty years of age, and for six years was Imperial Commissioner for the work of the Palestine Exploration Fund. At Tell-el-Hesy, by his wise and firm way in dealing with the Arabs during Dr. Petrie's season of work, he made it possible for us to live in the wilderness as safely as we might at home. Thrown together for companionship, we became warm friends, and I learned his character intimately. Its keynote was nobility. So great was his generosity, that he usually gave away all he had. As to his scrupulous honesty, no one dared to

question it. He was so frank that he always spoke out his opinion without regard of consequences. His mind was active and alert after new knowledge. Mingled with his interest in the excavations, I think there was a regret that his lack of training in the subject prevented his seeing their full historical bearing. His individuality came out best in his practical philosophy of life, expressed in brief witty sayings, quite impromptu, which have become recognised proverbs among his friends. As a *raconteur* I have never known his equal, and his stock of stories was inexhaustible. He understood the dramatic possibilities of an anecdote, knew when to go into detail, and when to stop. His personal bearing was dignified and charming, and I have known him to go out of his way to do a simple act of kindness. In him the Fund lost a warm and valuable friend. This attitude he consistently maintained with a perfect loyalty to his Imperial master. The almost complete immunity from difficulties was due to the tactful way in which he established our position in Jerusalem. His excellent traditions have been carried out by his son, Shauket Effendi, who was appointed as Commissioner in his place.

The New Foreman.

For a foreman it seemed best to train up a subordinate, rather than to bring in an outsider. Our cook, Yusif Abu Kina'an, a lad of twenty-two years, had been associated with Abu Selim for five years, and knew all his ways thoroughly. During his off-hours he had taken an interest in the exca-

vations, and was well known to all the Fellahîn. Accordingly, he was appointed foreman, and the mantle of Abu Selim seemed to fall upon him. Fortunately, during this trying season we had no land complications, as most of the work was conducted in the property of the Augustinians and in that of the Greek Convent. Yusif soon secured the respect of the workmen, notwithstanding his youthfulness. He showed true interest in the work, and amused himself—and us—by drawing plans of the excavations, mixing ground-plan and elevations in the manner of the ancient geographers. He followed a clue with the instinct of an archæological foxhound, but his enthusiasm failed to bear him up when we were seeking to prove a negative. To this scientific height his spirit did not rise, and he hailed with instantly reviving interest the orders to stop work on a long tunnel that had yielded no positive results.

Expiration of Permit.

May 12 was a day of great excitement, for the two years' permit expired on that date ; and though we had some time before applied for an extension for one year, this had not arrived. The post came in after the day's work was done, and up to eight o'clock I hoped that there might be no interruption in the excavations ; but the sun rose the next day on an enforced holiday, which lasted for over two months. The most arduous, dangerous work was easier to bear than that holiday, when interesting clues were awaiting to be unravelled, the days were

the longest and most propitious for work, the labourers were all at hand, proprietors were inviting us to dig in their lands, and yet, as far as excavation was concerned, we had to sit idle. Every post was eagerly watched for, and every visitor who approached the camp was looked upon as the possible bearer of a telegram. While returning to camp one night, we were attacked by a couple of drunken rowdies, and Mr. Dickie's right arm was broken. I am glad to say that all the authorities, British, American, and Turkish, exerted themselves in the matter so promptly that the men were caught, tried, and sentenced to imprisonment. Mr. Dickie received the kindest attention at the British Ophthalmic Hospital from Dr. and Mrs. Cant. I preferred to stick to the camp, though I found that a tent is a terribly hot place for literary work in the middle of a summer's day.

Extension of Permit.

But with the permission to continue, which arrived in the middle of July, our luck turned. By increasing the number of shafts, we were able to make up for lost time. After a while Mr. Dickie was able to return to camp and to work. Important discoveries at once began to cheer us. As usual, some of these were quite accidental. It was while following the scarp in search of a wall to the west of the Pool of Siloam that we came across the top step of the splendid stairway which once led to the ancient pool. Retracing our path, we began to

clear out the stairway, thus deepening the tunnel as we descended, until it became over 15 feet high. Fortunately, the roof was rendered quite safe by the fact that a strongly cemented water-channel ran along the side of the scarp near its top ; one side of the tunnel was the solid scarped rock, and the other was protected by the wall of the church. This last-mentioned fact, however, we did not know at first. Desiring to ascertain the breadth of the stairway near its top, I drove a tunnel one day along the top step to the east, and after digging for a few feet we struck a wall. On crossing its ruined top, we sank on the other side, and found a pavement. Although there was absolutely nothing to determine the character of this building (which was clearly built down upon the staircase), from the first moment I hoped that it might be the long-lost church which history tells us once existed at this spot. It was this hope that induced me to spend the time and money in excavating the building, and when, after working around the north arcade, we turned east, and saw traces of a curve appearing in the wall, I watched the digging with a keen interest, until the appearance of an undoubted apse set all fears at rest.

Land Complications.

The ground under which the church lies buried belonged to three sets of proprietors : the west end to a certain 'Atallah, most of the rest of the church to one Salim, while a part of the north aisle was

held in common by the peasants of Siloam. The shafts and tunnels in 'Atallah's land had to be independent from those in Salim's, for while 'Atallah was quite willing to have stones found in Salim's property emerge into his field, Salim strongly objected to the proceeding. As to the bit of common property, we satisfied the Siloam peasants by putting in repair the Pool of Siloam, into which a lot a rubbish had fallen, and by building up its ruined east wall. In consequence, we were able to push our own investigations undisturbed, a work which resulted in much light on the ancient pool as it existed in the time of our Lord. At the same time, the village lads rejoiced in the restoration of their favourite bathing-pool, and many were the blessings showered upon us.

The Surprises of Excavation.

Another accidental discovery was that of the paved street in the Tyropœon. This was found in one of the shafts sunk to ascertain the original form of the valley. Had the shaft been sunk a few yards to the right or to the left, we would have missed this important clue to the topography, and the depth of the rock beneath the surface once ascertained, the shaft would have been closed. As it happened, it was kept open for weeks while we traced the street north and south, and led to the opening of many other shafts for the same purpose. This illustrates the uncertainty of working underground. In opening up a new shaft it is impossible

to test whether it will be worked for a few hours only, or whether it will remain open for months. It is always necessary to have plenty of work laid out ahead, for you never know at what moment in the middle of the day you may have a gang of workmen idle on your hands, a clue having suddenly given out. While at work in the valley, we usually lunched in a little one-roomed house, with a cellar below, situated on the slope of the western hill, some 150 feet above the Old Pool, and just within the limits of the ancient city wall. From the door we could look up the Valley of Hinnom ; from one window down upon Bîr Eyub, and from another we could see our shafts in the Tyropœon and on the eastern hill. We were thus within instant call if anything important turned up between our regular visits. By a provoking chance, such a summons often came in the hottest part of the day, when we were taking a little rest. When the rains drove us to the hotel, Yusif and our servant moved to this room, where every evening a number of Siloam people sat and drank coffee. These little receptions had their value in establishing friendly relations with the owners of cauliflower and cabbage upon which we had designs. These relations were enlivened by a grim Siloam lady rejoicing in the name of the "Polite One," who laid claim to a large part of the territory in which we were excavating, and who declared the man with whom we negotiated to be a usurper. She appeared periodically on a Monday morning, and tried to stop the work, sometimes going to the extent of threatening to throw herself down the

shafts. The transfer of a silver coin usually produced a temporarily soothing effect, but her grievance always returned, and she haunted our little office, bringing with her a small girl, apparently for dramatic effect.

Season of 1897.

During the first six weeks of the season of 1897 we were somewhat handicapped, as Yusif had been left behind at Beyrout with typhoid fever. As excavation is not a well-known trade like carpentry, it did not seem worth while to train in a substitute. The workmen behaved most loyally, and took little or no advantage of the absence of a constant superintendent, though of course our own visits to the works were more frequent than formerly. We owe our thanks to Mr. William Reid, of Edinburgh University, Blackie Scholar for that year, who kindly volunteered his help in watching the work. The return of Yusif, quite restored to health, relieved us from the face-to-face contact with the landowners. The work of the season was almost entirely in the Tyropœon Valley, which seemed to grow more poisonous every day. An open drain poured its inky stream past our excavations into the huge cesspool below. One shaft was sunk some 20 feet away from the sewer, but one day there suddenly bubbled up at the bottom a horrid black spring, which compelled us to follow our clue from another point. The odious slime oozed in at another tunnel, which we had to saturate with diluted carbolic acid for our own safety, though the

boys declared that they preferred the other odours. It was always a relief at the end of the day to climb out of the deadly atmosphere and return to the hotel, where, for this season, we took the precaution to sleep. During the spring we had many visitors to the works, who usually ended by calling at our office, where a little museum was arranged. Thus a good many subscribers to the Fund were secured.

Close of Work.

The extension of the permit expired on Sunday, June 20; accordingly, Saturday was our last day of work. On that day I was obliged to see the Consul in regard to a little trouble arising from our having put on a gang of men to work at night south of the Haram Area, in order to gain time, and a complaint had been lodged by an unfriendly peasant. I mention the incident because it was unique. Since receiving the permit from Mr. Dickson, over three years before, I had never been obliged to trouble him with our business. This general absence of difficulties is gratifying. Our relations with the local officials were friendly, and his Excellency Hamdy Bey, Director-General of the Imperial Museum, always showed a keen interest in the work. As to the Jerusalem landowners, I think they were no more difficult to satisfy than would be the inhabitants of any English city. I can imagine telling a respectable dweller in Hackney, uninterested in archæology, that I wished to dig for an old wall in his cabbage plot. "Make it worth my while,

and then I'll see about it," would be his answer. We left Jerusalem full of gratitude for the many kindnesses we had received from its inhabitants, and the last faces we saw were those of our honest, loyal workmen, who had come to the station to see us off.

INDEX.

THE END.

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