

## NEW ROCK CHAMBERS AND GALLERIES ON OPHEL.

By The REV. J. GARROW DUNCAN, M.A., B.D., F.S.A. (Scot.).

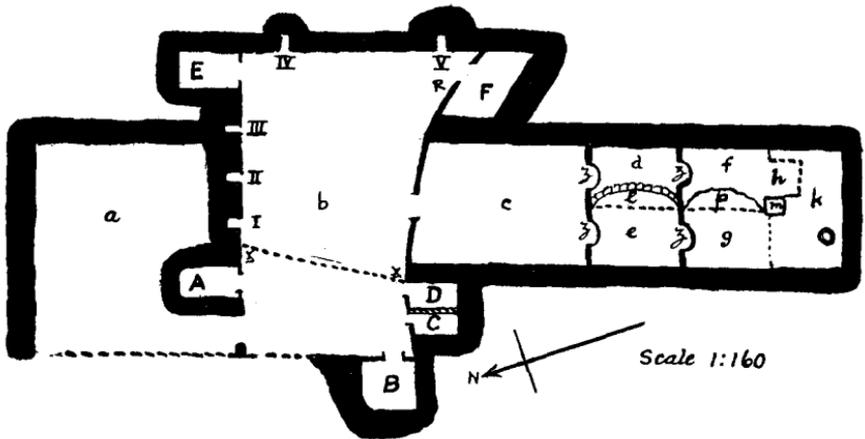
SHORTLY before I left Jerusalem two of the fellahin living upon Ophel, one a complete stranger, came and secretly confided to me their knowledge of some hitherto unexplored caves and offered me every facility in exploring and examining them ; they demanded only my word that I should not allow their confiding in me to bring them into any trouble, or ultimately "cause them the loss of their house or fields." The first to come was a greedy fellow, who saw an opportunity of paying off the balance of the debt on his property. He confided the information that under his possession there was a great cave with a curious door leading into many rock-cut rooms and galleries, as well as a built arch.

As I saw from his description that the opening into this cave was in the rock-scarp, on which the Inner or Jebusite eastern wall rests, and further that the wall here was the continuation of the Davidic repair on the Jebusite wall which I uncovered in Field 9, I was naturally much interested. The arch, I supposed, must be Byzantine, and must have been built to support the roof of the cave, as a house was built above it. The rock-cutting was probably done in adapting much older chambers for later purposes.

My foreman avers that his own brother entered stealthily and saw a great quantity of "afsh," which might be pottery, or bones, but very improbably anything of any value. In addition, the owner declared that he found a heavy gold coin outside the mouth of the cave, which he sold to a dealer for £T10! When we opened negotiations, however, the owner stoutly demanded £150 before we started work and quoted the £250 which we gave for Field 5 as his justification. In spite of every argument and persuasion he remained obdurate, and ultimately we cleared him out and declined to have any further dealings with him.

Next morning he offered me every facility for exploring if I would pay him £20, this sum to cover all costs, as far as he is concerned, and he renounced any claim to a share of the loot! And there the matter rests.

During these negotiations another neighbour came forward and informed me of the existence of another series of rock-cut chambers in his possession on the Western Scarp of Ophel on the opposite side of the hill to the first-mentioned caves. These he offered to allow me to explore at once, free of any preliminary expense.



PLAN OF CAVES ON OPHEL.

Chamber *b* is the only one drawn to scale; the rest of the plan is merely a sketch-plan and cannot pretend to be accurate where no measurements could be taken. It is intended to give an idea of the series of chambers cut in the rock.

In Chamber *b* the olive-presses are marked I-V. The store-chambers off the press-chamber *b* are marked A-F. Chamber A is under the floor of the outer room *a*.

The dotted line  $\times \dots \times$  is the line of the broken roof as it stands now; the area west of it is a platform 8-10 feet above the floor of the rest of the room. *z-z* are the four arched doorways between the narrow galleries and adjoining rooms.

*l* is the Byzantine arch inserted after the rock partition was demolished by those who converted the series into a cistern. *p* is the jagged arch of rock left between *f* and *g* by the same. *m* is the pillar of rock left presumably to support the roof—covered with Arab plaster.

*k* is the portion probably excavated by the makers of the cistern. It is covered in part with Arab plaster which is of comparatively recent date.

The circle in *k* is the shaft of the cistern. Gallery *g* originally ended in a line drawn from pillar *m* parallel to the partitions of the other galleries—dotted on plan.

At R in press-chamber *b* was found plaster keyed on to a heavy under layer with slabs of wide ribbed Roman pottery used to retain the upper coat.

This series consists of seven or eight rock-cut chambers of various sizes running north and south (*see* the plan). The front half of the entrance chamber has been completely quarried away and a wall has been built up to enclose it. The second chamber (*b*) is of irregular shape. Its north and south walls measure about 33 and 27 feet, its east wall about 24 feet, and its west wall 18 feet. The western portion of the room *b* has its floor on a lower level than that of room *a*. Steps lead down to it from *a*, and store-chamber A is cut into the floor of room *a*.

The front portion of the roof of this room has also been quarried away by Arab settlers, and later closed up by a built wall and roof.

In the west end of the room there are four small chambers, A, B, C and D on the plan, whose floors are on the same level as this portion of the chamber itself, and consequently 8 feet above the floor of the inner portion. These rooms measure, A,  $6\frac{1}{2} \times 3\frac{1}{2} \times 5\frac{1}{2}$  feet high; B,  $5\frac{1}{2} \times 5 \times 5\frac{1}{2}$  feet high; C and D,  $6\frac{1}{2} \times 4 \times 5\frac{1}{2}$  feet high, with an 8-inch rock partition left between them. The door from *a* into the large room *b* is 3 feet 8 inches wide, but half the height is cut away. The door of store-room A is 16 inches from the edge of the entrance and 3 feet wide. The peculiarity about store-rooms C and D is that there is a ridge about 12 inches high left on the floor, so that one has to step over it to enter, and the wall here has a slope on it. There is no appearance of these openings ever having been closed by slabs or hinged doors or otherwise. Had we excavated the floor of the inner portion of this chamber (*b*) we should doubtless have found a stair cut in the rock leading down to the press-room proper from the western half of the room.

In this inner portion of *b* there are three "cross- and barrel"-shaped presses on the north wall and two similar, but smaller, presses on the east wall. The upper portion of these is a cross incised to a depth of 17-18 inches in the solid rock. This cross rests on a barrel 3 feet in diameter cut in the rock. In the upper half of the barrel the front is cut away, below that it is complete. In the bottom of the barrel is a circular opening 21 inches in diameter. This leads to a cistern below, into which the oil flowed. The upper arms of the crosses I-V measure, taken in order, 36, 40, 39, 40 and 31 inches in height *above the cross-arm*; each is 12 inches wide and about 18 inches deep. In the cross-arms a beam 12 inches square and about 4 feet long rested. Through this beam passed an iron screw attached to a

large stone plunger. The handle by which the plunger was lowered or heightened has thus 12 inches space to work in and could be almost 11 inches long, or, if only a half-handle, about 5 inches long. The plunger must have been of the shape of the upper section of the barrel, a decapitated cone, and probably measured 31 inches deep, 2 feet wide at the top and 3 feet wide at the base. We were not so fortunate as to find a plunger, but doubtless they lie buried in the debris.

Under the plunger a perforated vessel containing olive-berries was placed, and the stone plunger was then allowed to weigh upon it, thus squeezing the oil through the holes. The oil flowed down into the cistern beneath. The upper arm of the cross shows that a screw of 31 inches length was used in No. 5, and of 36 and 39 and 40 inches in the other four presses. We cleared three presses and found a similar opening in the bottom of each leading to a cistern beneath. This cistern is plastered. Whether the cistern was a large one with an opening in the floor of the room for extracting the oil from it, or a series of small cisterns one under each press, could not be determined without clearing the whole room. Probably it was one large cistern with an opening in its roof covered by a well-fitting stone slab. This opening would be in the centre of the floor of the room.

In the north-east corner of the chamber there is another small store-room (E) cut in the solid rock, measuring  $6\frac{1}{2} \times 5 \times 5\frac{1}{2}$  feet high. The floor of this room is on the level of the floor of the press-room proper, *i.e.*, 8 feet lower than the upper section store-chambers A, B, C and D. The floor of room E is covered over with slime and sewage.

In the south-east corner of the chamber, cut on the same level is another store-room, F, measuring  $7 \times 3 \times 5\frac{1}{2}$  feet high. Both E and F are on the floor-level of the press-room proper.

When this part of the room was deepened to make it an olive-press these two small chambers, E and F, may also have been made. It is possible, however, that the chamber was used by them as they found it, and that all they did was to carve the five presses in its walls. The six chambers were there, ready to be used as store-rooms, but what purposes these six curious small chambers served originally it is difficult to say, unless they were used for burials and left unsealed. It is to be noted that each of them measures  $5\frac{1}{2}$  feet in

height, while their length and breadth measurements vary. Each press averages 10–11 feet in height. The lower section of the room is 17–18 feet high, and the upper section about 8–10 feet high.

When I entered this room first, of the five presses only the cross or upper portion was visible, and it seemed as if I had struck something bearing on Crusading times. The clearance of three, however, with the oil cistern below each, leaves no doubt that they are olive-presses of the Byzantine or Roman period, and of the simple screw and plunger type resembling large cheese-presses still in use in some parts of Scotland.

As a 40-inch screw was too short to allow the plunger to reach the bottom by 11 inches, slots 5 inches wide were cut in the side of the lower complete section of the barrel to admit bars of wood which would allow the plunger to use its whole weight when only a small quantity of olive-berries were in the press. A slot of 5 inches depth ran in horizontally from the front of the barrel, meeting a similar slot, on each side, which ran vertically to the very bottom of the press. This was obviously a contrivance for obtaining the full pressure of the plunger on any small quantity of berries. It saved their using a longer screw and cutting the central arm of the cross to a greater height.

*Pottery.*—In clearing part of the floor and presses Arab and Byzantine potsherds were found; but there was also pottery of a much earlier period.

Maccabaeian ware was abundant, one Rhodian jar-handle, inscribed, was found, and one slab of a Byzantine marble stele with the cross in the centre. The following is an analysis of five basketsful taken from this room: Arab, 309 fragments; Byzantine, 3; Roman, 31; Maccabaeian, 16; late Hebrew (Exilic Period), 9; Early Pre-exilic Hebrew, 1 lamp complete. From this analysis it is quite clear that these chambers were last occupied by the Arabs, who have removed nearly every trace of previous occupations; and it is possible that the pottery of these earlier periods was thrown in from outside when the floor was filled up to the present level. Otherwise we should be compelled to date these presses in Maccabaeian times or earlier, since the Maccabaeian and earlier pottery was found in the three which we cleared.

From this large press-chamber an opening in the south side leads into a series of chambers running south to south-west. The first

(*c*) is a room about  $16 \times 14$  feet. It is filled up to within 3 feet of the roof with debris which seems to have been thrown in from the press-chamber at some recent period, as its disposition and arrangement show. It is possible, but not likely, that the debris may represent the wash-in from the opening which the Arabs cut in the rock to admit the surface drainage to fill up the rooms which they now used as cisterns. That a great quantity of earth was washed in is quite apparent. They did not make a filter-catch at the opening, and so we find an accumulation of 7 to 8 feet of mud on the floor of the innermost room of all (*k*). In the first room (*c*), therefore, there is probably 7 to 8 feet of mud washed in, but the other 3 or 4 feet on the surface is loose debris and has been thrown in.

The owner of this "cattle-pen" (for that is the use to which the press-room is now put) says that this room (*c*) has small chambers cut in the rock on its west and east sides. It was impossible for us to see these. I imagine, therefore, that the man himself deposited the surface debris in the room. The threshold of the entrance from the press-room is practically on the level of the press-room floor. We cleared, however, only sufficient space to allow us to crawl in, so that this entrance from *b* to *c* cannot be discussed.

At the south end of this chamber (*c*) are two doors (*z* and *z*), one at each corner. These led into two chambers or galleries (*d* and *e*) about 12 feet long  $\times$  7 feet wide, with a partition of rock left between them,  $1-1\frac{1}{2}$  feet thick. These two narrow chambers are also so filled up that we could see no trace of side chambers in the rock. In their turn these lead by doors of the same shape and size into what were originally two other narrow chambers or galleries (*f* and *g*) not quite so long. The eastern chamber of these two had a small "upstairs" room (*h*) off it at the south end, of about the same dimensions as the store-chambers round the press-room.

Thus we have a series of five rooms leading off the press-room. First, a large room about  $16 \times 14$  feet. This is followed by two smaller rooms or galleries about  $7 \times 12$  feet, these, again, by two similar galleries about  $7 \times 10$  feet, and the eastern one ends in a higher cutting about  $5 \times 5 \times 5\frac{1}{2}$  feet, which may be an upper cupboard or shelf for burials. This seems to complete the original series of rooms.

The doors between these galleries, however, constitute a problem. The cutting in the rock is 6 feet high  $\times$  3 feet wide and rounded at

the top. The real door, however, was an oblong  $6 \times 3$  feet. At the sides, just under the rounded top, there are in every case hinge-pin holes, as if the door had been hinged at the top and had to be lifted from the bottom to allow admission. Prof. Dalman suggests that these hinge-pin holes may have been for a block of wood, and that the door had been hinged at top and bottom as usual—the upper pin revolving in a hole in this block of wood. This is possible, though the wooden block is quite unnecessary. They could more easily have made the hinge-pin hole in the rock itself.

The problem, however, remains that these doors are only 6 feet high and their original thresholds are 7 or 8 feet higher than the floor-level of rooms *b* and *c*.

The explanation of this is simple. When the series was converted into a vast cistern, the makers began at the south end. They extended the two southernmost galleries for seven or eight feet in length and made the drawing shaft in the roof of this extension (*k*). They then deepened the floors of all the four galleries to the same level as those of rooms *b* and *c*. Next they knocked out all the partitions between the galleries, leaving rough arches (*l* and *p*), and as the roof of the first two galleries was rather shallow and might give way under a house built above it, when they removed the partition between them they built-in a stone arch to support the roof. This arch (*l*) is Byzantine, but it has never had to support any weight. There is a clear space of a few inches between the surface of the arch and the roof-rock.

If the Byzantines therefore used these chambers as water cisterns, the press must be Roman or earlier. It is quite possible, however, that the Arabs simply stole a Byzantine arch and reused it, as we found them doing in our excavations in Field 5. Between the two southernmost galleries (*f* and *g*) they left also a rock pillar about 2 feet square (*m*), to support the roof and the arch. The pillar is covered over with plaster. This plaster consists of white lime mixed with lumps of badly broken red potsherds, apparently of Maccabaeon and earlier pottery. Prof. Albright set this plaster down as Roman, but the Romans did not use potsherds in this manner in their houses on Ophel. I think this plaster is Arab. The walls of this innermost chamber (*k*) are covered with Arab plaster of a very late date, showing that the cistern was used until a comparatively recent date.

On the wall of the press-room, beside the door of the small store-chamber F, I found a large piece of surface-plaster, which was keyed on to Roman ribbed potsherds. It seems likely, therefore, that I am right in assigning the press-room to a late Roman or Early Byzantine Period and in attributing the conversion of the series of cuttings into a vast cistern to the Arabs. The remaining problem is the original date of these cuttings, and this, I think, can only be arrived at by a clearance of the rooms, which could be done at no great expense.

It is quite clear that the galleries are not store-chambers cut by the makers and users of the olive-press. They existed before, but these may have deepened one of them. They probably deepened and used only room *c* as a store-chamber. The doors show that the original floor-level of the galleries was at least 7 or 8 feet above their present level.

In either supposition we have here a series of rock-cut chambers dating further back than the period when the olive-press was in operation, and I see no strong reason against the supposition that the whole suite was originally a series of tomb-chambers cut at some period in the Iron Age, not earlier than 1000 B.C. and probably not later than 600 B.C.

I have added a sketch plan of the inner chamber and galleries, but this does not pretend to be accurate, as no measurements could be taken. It is merely intended to help the reader to realize the sequence of cuttings. In the press-room careful measurements were taken of the walls and the parts where we cleared away the debris, but even here accuracy would only be possible after complete clearance.

*July, 1925.*

---