

is said to have received, or shortly will receive, a firman from H.I.M. the Sultan. It is proposed to make a daily circuit of the lake for the benefit of travellers at very moderate charges. The first boat was not powerful enough to make headway against the wind, but on this the engine (20 horse-power) is supposed to be fit to meet any ordinary weather.

'AIN EL-FESHKHAH, EL-HAJAR EL-AŞBAH, AND KHURBET KUMRÂN.

By Dr. E. W. G. MASTERMAN.

'AIN EL-FESHKHAH (عَيْنُ الْفَشْخَة) is the name given to a district abounding in springs at the north-west corner of the Dead Sea. As I have during the past 18 months paid no less than 12 visits to this little-visited spot, I think a short account of it may be of interest. The brief descriptions of Lynch (1848), De Saulcy (1851), and Tristram (1864) differ in many important points from what is found in the district to-day.

'Ain el-Feshkhah may be reached from Jericho in from two and a half to three hours on horseback. The first half of the way, nearly due south, over the plain of Jericho, is an almost level track until the Wâdy Dabr¹ is reached. This great ravine commences abruptly, where the Wâdy el-Kaneîerah leaves the mountains, in a succession of precipices down which the winter torrents have worn a narrow hollowed-out channel for themselves. The first quarter of a mile is a narrow winding ravine with sides, almost perpendicular for some 200 or 300 feet, consisting of limestone below and soft sedimentary deposit above. Further east the valley opens out to a width of perhaps 300 yards, the sides in places being composed of perpendicular cliffs of 150 to 200 feet in height, consisting of parallel strata of gravel and fine sand. The centre of the ravine is a torrent-bed of rounded stones; it is almost always dry. I found water in it on only one occasion, and that but a small stream, although immediately after heavy rain. Where the road to the 'Ain crosses the valley there are two well-marked terraces, one above the other, between the torrent-bed and the level of the plain. On the lower one on the left side, and on the upper one on the right side of the valley, there are evidences of recent occupation by Bedawin.

After mounting to the plain and proceeding southwards, the road

¹ [Cf. the name W. [ed.] Dubbâr in the *Name-Lists*. Baedeker gives the spelling ed-Dabir, but Dr. Masterman writes that he has never heard it given with the article.—ED.]

gradually converges towards the western hills, and soon the traveller notices a large white stone standing between him and the hills. It is about 20 yards west of the path, a little to the south-east of the peculiar rock figured by Prof. Clermont-Ganneau in his "Researches" (vol. ii p. 10, *seq.*), and shortly before a "small natural bridge" may be seen in the rocky hill to the south.

This stone is el-Hajar el-Asbah ("the white stone"), a landmark very well known to all the Bedawin. I have on several occasions had it pointed out to me. It is a prominent object, especially when the sun shines upon it, its brilliant whiteness standing in bold contrast to the dark reddish rocks all around. It stands near the foot of the hills, but too far for it to have reached its present position naturally. From a short distance it looks like the capital of a large column, for which indeed I at first mistook it, but on nearer examination it proved to be a rough unworked block of hard limestone without any carving or inscription. Its measurements are as follows:—Length, 4 feet 6 inches; breadth, 2 feet 8 inches; height, 3 feet 7 inches; and girth, 11 feet 5 inches. The Bedawin have a tradition that it is Lot's wife and child and donkey turned into stone! This stone, though apparently the same one as that mentioned by De Sanly ("Dead Sea," vol. ii, p. 48), appears to be quite different from that identified by M. Clermont-Ganneau (*Quarterly Statement*, 1874, p. 80, *seq.*) as el-Hajar el-Asbah. His stone is one of several dark reddish stones which have evidently fallen from the cliff above, a few hundred yards to the north-west; these also are visible from this point, but there is nothing characteristic about them. His measurements point to a much larger stone. The position of this, however, which I believe to be the true Hajar el-Asbah, is much nearer to the peculiar rock he associates with the name Şahşûl Hameid than his stone. Since I found out the discrepancy I have made inquiries, but those who know the locality best are positive that this white stone is the landmark. It is quite probable that Bedawin may, if their suspicions are aroused, try to prevent those whom they suspect of some ulterior motive, from finding the right stone.

From this point the road is very rough and stony until, after about three-quarters of an hour, 'Ain el-Feshkhah comes in sight. At this point, by making a small diversion to the south-west, the remains known as Khurbet el-Yehûd or Khurbet Kumrân may be visited. They are described in the Palestine Exploration Fund "Memoirs" (vol. ii, p. 210, *seq.*) and elsewhere, but no suggestion is made regarding their origin. The ruins consist of some enclosing walls, and, in the centre, the remains of what may well have been once a small fortress, but now only heaps of large stones and the outlines of walls remain. Close to these is a *Birket* (pool), in fair preservation, partially plastered, with the remains of a flight of steps from the north end. It is 67 feet long, 16 feet 8 inches broad, and (at present) 10 feet deep. To the westward of the ruins, and extending towards the western hills, there are remains of what appears to have been an aqueduct.

The whole of these ruins stand on a commanding position, surrounded on all sides, and especially to the south, by steep declivities ; at one point at the north-west corner, however, a narrow neck connects it with the plateau to the west. From this site every part of the 'Ain Feshkhah oasis and all its approaches can be overlooked ; it is, also, a fresher, healthier situation than any spot in the plain below. I found a fresh breeze there when on all the lower ground it was hot and still. The site is just such a one as would have been chosen in, say, Roman times to protect the springs and the road passing through the district to the south, a road which very possibly at such times may have been continued along the shore round Râs el-Feshkhah.

It is more difficult to suggest an explanation of the great cemetery which lies on the same hill to the east. Here are upwards of a thousand well-arranged graves, each one covered by carefully-ordered stones. They are much more carefully made than ordinary Bedawin graves ; the orientation is not that of Moslems, and an examination of one which was opened by M. Clermont-Ganneau in 1874 showed, at the depth of a metre, "a bed of rough clay brick . . . resting on a kind of flange cut in the earth itself." The head lay to the south. At present, at least three of the graves have been exposed and lie open.

Viewing the 'Ain Feshkhah oasis from this hill it is seen to be confined in a triangle. The northern side or base is the Wâdy Kumrân, which lies at the foot of the hill. The apex is due south, close to Râs el-Feshkhah, where the mountains fall sheer down into the sea. To the west, the mountains, from the steep crater-like head of Wâdy Kumrân, all the way to Râs el-Feshkhah, are composed of exceedingly rugged and broken limestone and conglomerate, more than 1,500 feet (Tristram) in height, and almost precipitous. There is only one exit from this district to the south, and that an exceedingly rough ascent, about 40 minutes steady climbing, which commences near 'Ain el-Nahr ('Ain el-Feshkhah). This is the pass described and depicted in Tristram's "Land of Israel," and marked in some maps as if it were a made road. It may have been so once, but now in many places it is almost impassable for led horses. I have returned to Jerusalem this way three times, but on the last occasion almost lost a horse over a declivity. A very noticeable feature of these mountains, as viewed from the oasis, is the raised terrace which runs in almost a straight line along the face of the cliffs. It consists of the usual soft marl of this part of the Jordan Valley and lies as a narrow edging to the height of about 70 feet. It is shown somewhat diagrammatically in an engraving in Tristram's "Land of Israel," p. 253.

Turning to the seaward boundary of the district, we find that on calm days it is marked out about a mile from the shore by a wavy line of white foam. This commences a little to the north of the springs, and is lost to sight round the headland, although from other observers we know that it extends all down the western shore of the sea. It consists of a continuous line of tenacious soapsud-like froth which, under certain



VIEW OF RÂS FESHKHAH FROM KH. KUMRÂN.



VIEW OF WÂDY DABR.

conditions, is carried out from the beach. I am inclined to think the outward movement of the warm water of the springs which rise all along the shore at this part have much to do with the distance from the shore at which it lies. Another factor seems to be a westerly breeze : on days when the white line is marked the air in shore has always been particularly still, whilst on ascending the hills I have found a steady westerly breeze. Probably it strikes the sea about that point. A southerly or south-easterly breeze, as I have witnessed on several occasions, will break the line into great masses like miniature icebergs, some a foot and more across, and 9 inches high, which flock the sea in moving spots of white until they are finally driven to land in an almost continuous frothy line along the northern shore. On rough days the line is invisible, but great quantities of similar foam are lashed up along the beach by the breaking waves.

The shore adjacent to 'Ain el-Feshkhah consists of a shingly beach for a distance of about two and a half miles. At the northern part the beach is about 3 feet high when the water is lowest. Seawards there are remains of submerged rocks and bushes for a considerable distance, and the shore is covered thick in places with piles of broken reeds and the shells of fresh water crustacea. It is quite evident that the sea has greatly encroached.

The line of beach is broken at four points. The first and northernmost is one where the marshes break through, as it were, for a breadth of perhaps 20 yards. Here a crossing must be made, even when the sea is at its lowest, by wading through slimy mud and water, planting one's feet where possible upon the masses of dead reed roots covering the bottom. A few yards further south two little streams of slightly brackish water are encountered. These are known to the natives as Seil ed-Dowa. These streams carry to the Dead Sea the waters of most of the (northerly) springs of the district. They run from the north end of a lagoon, a third of a mile long, and from 50 to 150 yards wide, which lies at this part between the reeds and the sea beach. The water of this lagoon is at present brackish, and from 1 to 2 feet deep. From the great number of dead reeds standing out of the water I think that at times, perhaps during storms, the salt water invades this area. This is further confirmed by the fact that to the landward side there lie among the reeds a number of dead tree-trunks, evidently washed up by the sea.

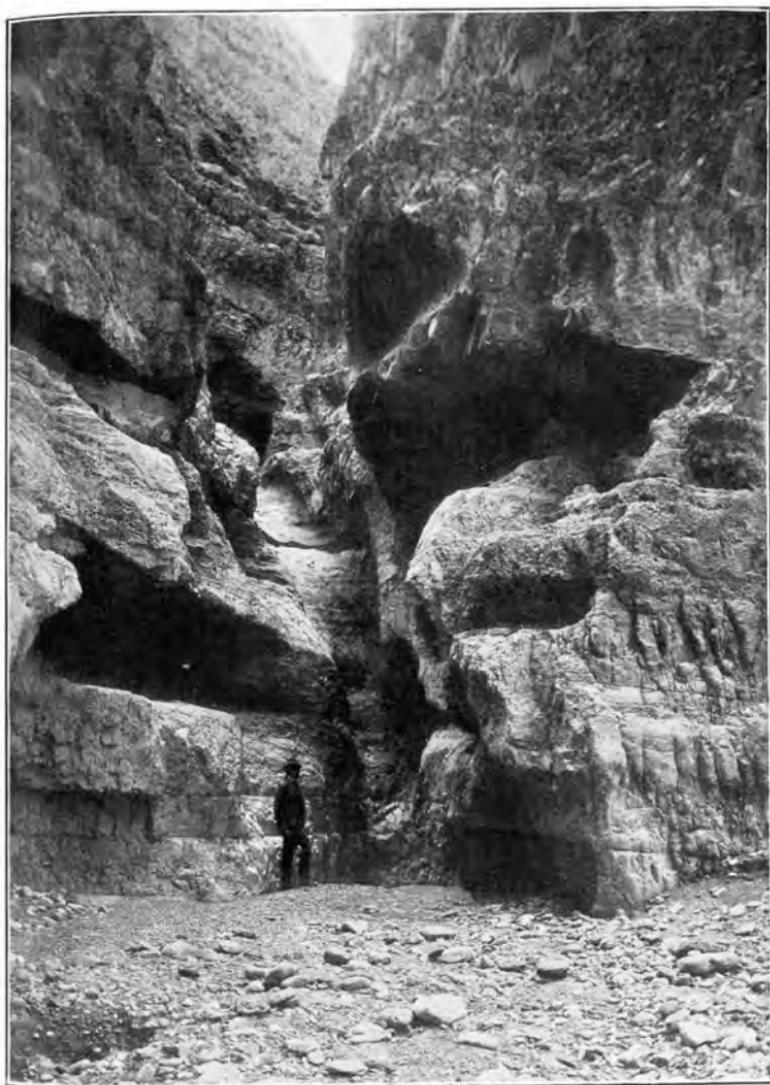
At the south end of this lagoon, Seil el-Mabneyeh, a quick-running little stream from 'Ain el-Mabneyeh, enters the lagoon after skirting the gravel beach for some distance. The stream is at this part about two yards wide, and half a foot deep ; it runs fast even in the driest season, and swarms with fish. In the lagoon itself I did not observe any fish. The next break in the seabeach is about half a mile further south, where 'Ain en-Nahr (usually called also 'Ain el-Feshkhah) breaks directly through to the Dead Sea, flowing over the extensive remains of a reed thicket. From the descriptions of previous travellers I am inclined

to think that before the sea encroached¹ the waters of this spring also formed a stream (hence the name *Nahr*, river) which skirted the inner side of the beach, and joined the Seil el-Mabneyeh and the lagoon. Southwards from this point the beach is much lower, and when the Dead Sea rises, i.e., in the spring, is practically covered, except where, as one approaches Râs el-Feshkhah, it becomes strewn with large boulders from the cliffs above. The whole shore here abounds in small springs, and is covered with reed roots extending out under the Dead Sea water.

I have it on the authority of a most reliable Bedawî that in the days of his father there was beach all the way round the base of Râs el-Feshkhah, so that he was able to get round that way. Now, and in Tristram's time, the Dead Sea washes perpendicular cliffs at the *Râs*. Lynch, in his description, seems to imply there was low ground between the cliffs and the sea.

Turning our attention now to the land, it will be most convenient to describe the oasis as it is viewed from the road traversing it from north to south. This "road" is little more than a track lying amongst the confused heaps of stones in which De Sauley thought he saw the remains of Gomorrah. The springs and the surrounding marshes are marked out by the great clumps of reeds growing from them. In the northernmost group are two springs, known as 'Ain ej-Jidy (عین الجدي) and 'Ain Ratam (عین رتم). These rise in the midst of a thick marsh overgrown with reeds; some of their waters find their way seawards by the marshy outlet through the beach described above, and some flow into the lagoon and thus seawards by the Seil ed-Dowa. Between this first clump and the next the reeds become a thin fringe skirting the lagoon, the ground between them being stony and dry. The second group not only extends westwards up to the road, but actually crosses it and forms at the foot of the mountains a small thicket, known as Haish el-Mukdâm (هیش المقدام). The great mass of the watered area to the east of the road consists of a reedy marsh, recently partially cleared where the ground is solid, in which rises 'Ain Ghuzâl, and an open area (long cleared of reeds) in which rises the most important spring of the whole group, 'Ain Mabneyeh (عین مبنیة). This spring rises in a small pool about 4 feet across and 3 feet deep, whence the water runs as a fresh, limpid stream along the north edge of the cleared area, to find its way as the Seil Mabneyeh to the lagoon described above. The "cleared area" was once largely overgrown with reeds, but these have been destroyed

¹ Since writing the above I have been informed by a Bedawî whom I met at the spring, that it is just six years since the sea "ate the spring"—as he expressed it—by breaking over the beach here, and forming the pool to be described later on. He called this spring 'Ain el-Feshkhah only, not 'Ain en-Nahr.



VIEW OF DRYBED OF WATERFALL IN WÂDY DABR.

by the Bedawin. From time to time other places, where the ground is moderately solid, are cleared by burning the reeds, the young sprouting shoots that spring up affording excellent fodder for the cattle. A considerable section has been so treated since first I visited 'Ain el-Feshkhah. The water of 'Ain Mabneych is slightly tepid, and brackish, but not disagreeable to drink. Neither here nor anywhere in the district could I detect any of the "sulphurous fumes" spoken of by other travellers.¹ The 'Ain itself affords a delightful bath; the sides of the spring and banks of the stream are lined with the roots of reeds that have been destroyed. Between this 'Ain and the next there is about a quarter of a mile of slightly elevated, exceedingly rough ground—the mouth of a rift in the mountains, known as Wâdy Semâk. In this Wâdy is a cave, partly artificial I think, in which potash has been made from time to time by burning plants growing in the district. The floor is thick with ashes and the walls quite black, except for numerous light mud wasps' nests scattered over them. Towards the sea a thick line of reeds connects the growth round 'Ain Mabneyeh with that to the south.

The spring we now approach is that usually described as 'Ain el-Feshkhah, though the Bedawin to-day call it 'Ain en-Nahr. It is a little difficult to know to what one should apply this name, because there are so many springs rising at this spot. They all empty themselves into a pool about 60 feet across, surrounded two-thirds of its circumference by tall reeds. First, there is a considerable spring rising at an open spot (trampled hard by goats and cattle) to the west and some feet above the pool. Secondly, at the south-east corner of the pool a stream about a yard across flows with considerable force from among the reeds. Thirdly, there are several springs in the pool itself, notably from under a large rock in the centre. The salt water of the pool is full of currents of warm, fresh water from the springs. Near the western end the water is only slightly salt, and there are many fish. The pool is considerably larger after the rains—rising and falling of course with the Dead Sea, with which it is in direct connection. I found a difference of 2 feet 4 inches in the depth during the year as measured on the rock in the centre.

From this pool the reeds extend in a thinner and thinner line (they have lately been largely burnt down) for about a mile towards Râs el-Feshkhah. They are kept alive by numerous small springs which burst forth just at the water's edge. Some indeed can be seen rising under the sea itself. One of the most considerable of these submarine springs is close to our observation-place. Under the observation-rock itself there rises a spring known as the spring of the gazelles—'Ain el-Ghezlân (عيون الغزلان). It is quite drinkable water and perennial in supply. Even beyond the fringe of reeds there are many small springs, so that

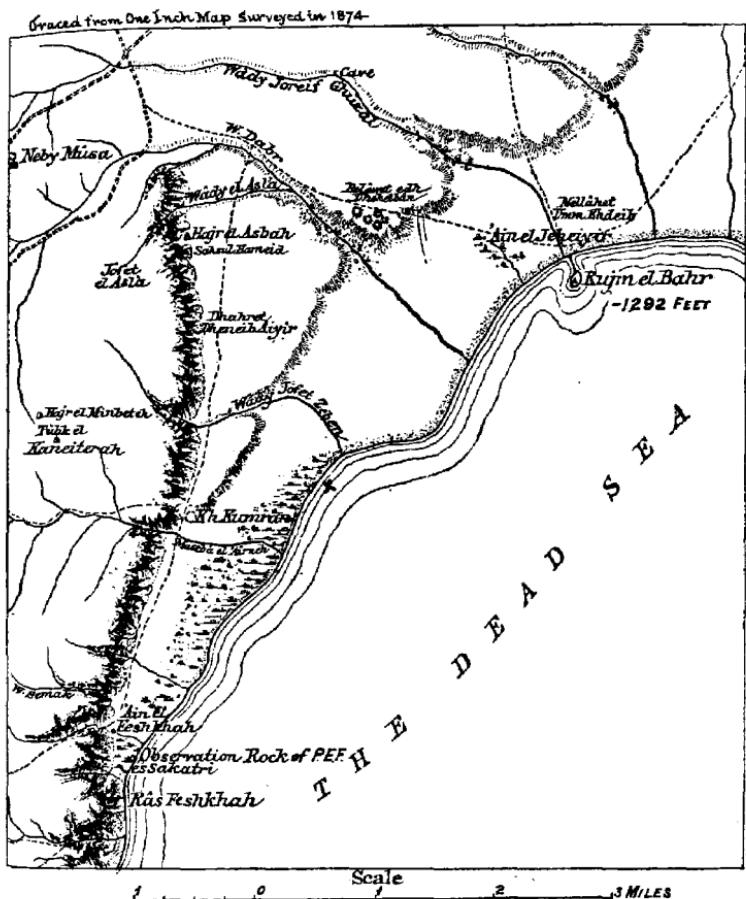
¹ On my last visit, however, whilst wading the 'Ain el-Feshkhah pool in nearly a foot of rotting sediment below the water, large bubbles of gas arose around me, having an unmistakable odour of sulphuretted hydrogen.

taking all together the amount of fresh water running here into the Dead Sea must be very considerable.

The district round 'Ain el-Feshkhah is deserted for the greater part of the year. I have ridden from Jericho to the 'Ain and back again without encountering a single person or any sign of human presence. Early in the year, in January and February, Bedawin descend into this part of the plain, and flocks of goats and sheep and also camels may be seen on all hands. The Bedawin at this time inhabit caves in the hills round. The 'Ain el-Feshkhah oasis itself has been tenanted for some eight months now by two men (natives of Abū Dis), who are in charge of a large herd of cattle, belonging to the Sultan, which thrive in the reeds. The men collect and dry rushes, which are sold for basket-work. As regards wild animal life, one of the men told me there are wild boar in the marshes, which is probable. There are storks, kingfishers, hawks, and many small birds. Jackals, conies, and gazelle are found on the hills around, and the ibex has been seen in the neighbourhood. The fish I have seen caught in the pool were *Chromis niloticus*; there are also varieties of *Cyprinodontidae*.

February 19th, 1902—*Condition of White Line*.—On approaching the district the whole surface of sea was misty, distant mountains almost obscured, heavy clouds and occasional showers. At this time no white line could be seen, but about a mile from the shore a dark line, wavy in outline, could be made out lying in the usual position (when present at all) of the "white line." It terminated to the north-east of the 'Ain Feshkhah district, just as the white line did. Later on, when the wind veered and the sun was out, I noticed in the distance that there was something of a white line (when some distance off the "white line" cannot be well seen, except from higher ground), and as I was leaving, about noon—a south-east wind then blowing—the white line was then being driven inshore, becoming crumpled together as it were. The north end was then close to the lagoon, a few minutes later it was south of the lagoon, and as I finally left almost all of it had been blown ashore.

Condition of Vegetation.—Plain of Jericho, dotted over with flowers, specially large patches of yellow compositæ. At 'Ain Feshkhah (on the rocky bases of the mountains) flowers in bloom on all sides, specially several varieties of yellow daisy-like compositæ, white and violet cruciferæ, &c. The Jericho plains (on the road to the 'Ain) almost deserted again—only encountered two small flocks of sheep; Sultan's cattle have left the 'Ain. One man was seen, a Bedawi (one of the Ta'āmerah Arabs), who was hunting ibex in the mountains.



* The "white line" generally ends near this point when it is quite distinct.

The great rise in the level of the Dead Sea since the survey was made in 1874 has completely altered the coast line as represented on the map, and covered the little island Rujm el-Bahr, upon which one of the trigonometrical stations was erected. It has consequently been found impossible to lay down with any accuracy the positions of the small springs mentioned by Dr. Masterman, and they have been omitted.