presence whilst seated on the *bema* in front of Herod's palace (Jos., "B. J." ii, 14, § 9); and Varus seems to have crucified Jews at any convenient place ("Ant." xvii, 10, § 10). In ordinary cases the body was left upon the cross until it had perished through the action of rain or sun, or had been devoured by birds and beasts. Sepulture was usually forbidden, but in consequence of the Jewish law (Deut. xxi, 22, 23) an exception was made in favour of the Jews (Matt. xxvii, 58; John xix, 38; *cf.* Jos., "B. J." iv, 5, § 2).

The conclusion seems to be that, with our present knowledge, it is impossible to say whether there was, or was not, a public place of execution at Jerusalem either before or after the Roman occupation. There is no evidence that the Romans, during their occupation of the city, executed criminals at a public place of execution. It would have been contrary to their usual practice to do so. There is no evidence of any value that the Jewish place of stoning was a fixed spot: there is only a bare possibility that it may have been so in Maccabæan and post-Maccabæan times. The view that there was a Jewish public place of execution at Jerusalem in the first century A.D., and that during the Roman occupation it was the place at which criminals were crucified or decapitated is not supported by any evidence, direct or indirect.

## OBSERVATIONS OF THE DEAD SEA LEVELS.

By Dr. E. W. Gurney Masterman.

For a year and a half observations have been made under the auspices of the Palestine Exploration Fund to ascertain the seasonal and annual variations in the level of the Dead Sea. In *Quarterly Statement*, 1901, p. 4, Mr. Macalister reports our visits to 'Ain el-Feshkhah and the selection of a suitable place for making these observations. Since that time I have made the periodical measurements of the changes of level, except once, when Mr. Hornstein, who has on several other occasions given me the benefit of his assistance, undertook the duty. Exact uniformity in the method of taking the measurements is absolutely necessary, as otherwise, at the site chosen there is room for a considerable range of error. On

country with regard to gibbeting, which like crucifixion was meant to terrify. In populous districts, and in large towns, the gallows were erected near a road, or in a public place, whilst in the more sparsely-peopled country districts they were set up on hills so as to be more visible.

every occasion after the first I used a small weight to keep the tape vertical.

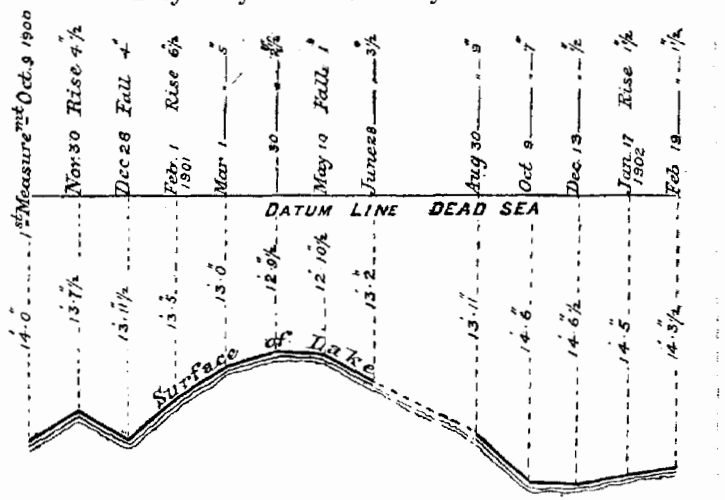
The rock on which the P.E.F. mark was cut is a huge mass of conglomerate, fallen from the mountain above, which breaks the long line of reeds skirting the shore between 'Ain el-Feshkhah and Râs el-Feshkhah. It is nearly a mile south of the *'Ain*, and is approached by a faint track parallel to the shore, the last half of the way being a scramble from rock to rock. I always have to leave my horse at the *'Ain*. On hot days (and such are the rule,—all westerly breezes being shut off by the mountains) the walk to and from the observation point is more exhausting than all the rest of the journey. It is possible that nearer the *Râs* a surface of rock really perpendicular might be found, but this advantage would, in my opinion, be slight compensation for the extra length of scramble in the sweltering heat. Our rock is not quite perpendicular nor quite smooth; hence care is required on each occasion to lay the measure in exactly the same way. The observations are made with an ordinary tape measure; the end, weighted with a small stone, is dropped to the level of the water, and the other end laid against the north end of the horizontal line cut on the rock. To prevent mistakes I have always made two or three independent measurements, withdrawing and readjusting the tape each time.

The sea on most of my visits was smooth, at any rate in the bay made by the *Râs*; the only occasions when there were wavelets and a fairly strong wind (south-east) were on November 30th, 1900, October 9th, 1901, and January 17th, 1902. On the last date there was almost a storm: the wind was first south-east, then veered to south-west. Possibly this wind may have raised the general level of the water a little—indeed, comparing the first of these measurements with that made December 28th, 1900, I feel sure it must have done so.

Coming now to the actual measurements, it will be noticed that the difference between the highest and lowest during the year was small—much less than was supposed by those who have written on the subject. The P.E.F. mark was originally (October 9th, 1900) 14 feet above the lake level; on March 30th—almost at the end of the rainy season—the water had risen 1 foot $2\frac{1}{2}$ inches; it remained near that level till May, when it again began to fall: on December 13th, 1901, I found that there had been a total fall of 2 feet 1 inch. Admitting that the visits may not have been timed

to catch the extremes, I think we are within the limit in saying that the difference in level between the lowest in 1900 and the highest in 1901 was under 1 foot 6 inches, and that the difference between the latter and the lowest in 1901 was within 2 feet 6 inches. The rainy season 1900–1901 was unusually dry (only 17 inches of rain were registered in Jerusalem), and probably the rise was below the average; the effect of this is also seen in the fact that on a certain day in 1901 the level was 6 inches lower than the same day in 1900, and later sank still lower.

*Diagram of Rise and Fall of Dead Sea.*



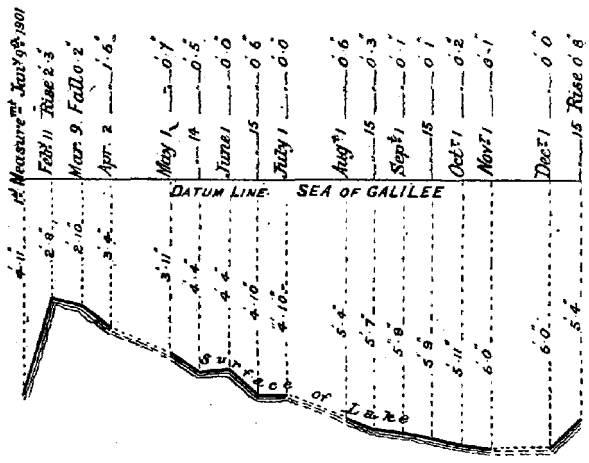

Should, as we hope, the rainfall this season (1901–1902) return to what it has been for some years past, interesting results will be obtained. An annual difference of even 6 inches in a uniform direction, *i.e.*, of higher or lower level, would necessarily make a great change in the general lake level during a period of years. This is well illustrated by the fact that by January 17th, 1902, the level still remained, in spite of a heavy rainfall (11 inches) over a foot lower than it was February 1st, 1901. Probably the level is highest about the middle of April—lowest in ordinary years in November.

I send with this a table, showing the dates of visits, the length of intervals between visits, the amount of the rainfall at Jerusalem, and a few general remarks.

| No. of Visit. | Date of Visit. | Hour. | Length of interval in days. | Rainfall during interval at Jerusalem. | Rise. | Fall. | Remarks. |
|---|---|---|---|---|---|---|---|
| | 1900. | | | inches | inches. | inches. | |
| 1 | Oct. 9 .. | 11 a.m. | — | — | — | — | Mark made (see *Q.S.*, 1901, p. 4); no weight used. |
| 2 | Nov. 30.. | 11 ,, | 52 | 0·490 | 4·5 | — | Strong S.E. wind; small waves; weight used, and on all subsequent occasions. |
| 3 | Dec. 28.. | 7 ,, | 29 | 5·180 | — | 4·0 | Observation made by Mr. Hornstein. |
| | 1901. | | | | | | |
| 4 | Feb. 1 .. | 11 ,, | 35 | 7·555 | 6·5 | — | Strong westerly breeze; reeds at 'Ain Feshkhah in flower. |
| 5 | March 1 | 10 ,, | 28 | 0·150 | 5·0 | — | Fresh green leaves and flowers in plain; off the beaten track much of the plain very soft. |
| 6 | March 30 | 11 ,, | 29 | 0·740 | 2·5 | — | Intense heat; swarms of locusts; storks. |
| 7 | May 10 .. | 9 ,, | 40 | 0·735 | — | 1·0 | Intense heat; Sultan's cattle from Jericho feeding at 'Ain Feshkhab. |
| 8 | June 28.. | 9 ,, | 49 | 0·995 | — | 3·5 | Strong westerly breeze; intense heat; signs of recent thunderstorms at 'Ain Feshkhah. |
| 9 | Aug. 30.. | 5.30 ,, | 63 | — | — | 9·0 | Intense heat. |
| 10 | Oct. 9 .. | noon | 40 | — | — | 7·0 | South-east wind; small waves; cattle at 'Ain Feshkhah. |
| 11 | Dec. 13 .. | ,, | 65 | — | — | 0·5 | |
| | 1902. | | | | | | |
| 12 | Jan. 17 .. | 1.30 p.m | 35 | 3·700 | 1·5 | — | Strong south-east wind veering to south-west; rain and high waves on the sea; the reading was probably too high. |
| 13 | Feb. 19 .. | 10.15 a.m. | 33 | Not reported | 1·5 | — | Wind south-east; small waves; flowers in bloom on plain and foot of hills. |
| | | | | | 21·5 | 25·0 | |

That there has been a general rise in level of the waters of the Dead Sea is evident on all hands. The disappearance of the island Rujm el-Bahr,[1] the changes at 'Ain el-Feshkhah, the disappearance of the passage round the foot of Râs el-Feshkhah, the submergence of the causeway which, within the memory of people now at Kerak, used to connect the western end of the *Lisân* with the west shore of the Dead Sea, and, lastly, the changes near Jebel Usdum, all demonstrate that the rise of level is general. It occurs to me that it might be a help in clearing up the question of how much the level has risen in recent years if a series of soundings were taken at such places as over the situation of the Rujm el-Bahr, off Râs el-Feshkhah, &c. In October I specially visited the shore in the neighbourhood of the Rujm el-Bahr with a Bedawi who knew it well, but no sign of it was to be seen, nor was there any evidence on the surface of the sea of a submerged island. The water must be a considerable depth over its highest point.

*Observations on the Level of the Sea of Galilee during* 1901, *taken at Tiberias, by Mr. Rasheed Nassar, and forwarded by Dr. Torrance.*




It is probable that very shortly a new and more convenient means of studying the lake will be opened up. The commodious little steamer which has been lying many months in the Jordan

[1] *See Quarterly Statement*, 1900, p. 273 *et seq.*

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-ḤAJAR EL-AṢBAḤ, AND KHURBET ḲUMRÂN.

By Dr. E. W. G. Masterman.

'Ain el-Feshkhah (عين الفشخة) 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 Dabr[1] is reached. This great ravine commences abruptly, where the Wâdy el-Ḳaneiṭerah 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-Dabr, but Dr. Masterman writes that he has never heard it given with the article.—Ed.]