DEAD SEA OBSERVATIONS.

By Dr. E. W. G. MASTERMAN.

(Continued from p. 299.)

May 30th, 1902.—*Fall of Dead Sea level* since April 26th, 1·5 inch.

Fall of 'Ain el-Feshkhah since April 26th, 0·75 inch.

Rainfall at Jerusalem since April 26th, 0·1 inch.

Temperature, 7.30 A.M.—Air, 78° ; 'Ain el-Mabneyeh, 80·5°.

Weather.—Clouds ; few, cirrus ; mountains fairly clear ; misty to east for a couple of hours after sunrise ; slight mist over sea obscuring south end ; western mountains unusually clear.

State of Dead Sea.—As we approached the 'Ain district the west side of the sea surface appeared clear and glassy ; the eastern slightly broken by small wavelets ; no perceptible wind, but evidently a light breeze from W. arrived at 7.30, and soon after wind veered to S.E. ; small wavelets appeared over sea near us, wind gradually got stronger, and by the time we reached Jericho on our return was a good steady breeze, probably was stronger on the lake than where we were.

White Line.—A slight broken white line could be made out in extreme distance (at least half way across the lake) on our arrival. When wind veered to S.E. became more visible, and as we left about 9.30 and looked back we saw *two* white lines : the outer one very wavy about centre of the lake, but driven ashore to north, the shore near the salt station (at the place usually visited by travellers) being strewn with white foam. The inner line about a mile out opposite the main spring of 'Ain Fesh-khah was being driven ashore to the north of the district ; the southern end stretched out in line with west shore till lost in the distance to south of Râs Feshkhah.

Remarks.—Neither Bedawîn nor cattle at 'Ain. Near Wâdy Dabr a Bedawi and his wife, with four donkeys, encountered, engaged in smuggling salt. Salt being a Government monopoly, no one is allowed to touch it, though the business of gathering it is quite neglected. I believe considerable quantities are smuggled to the villages north of Jerusalem. Animals, &c., seen. A single gazelle near Wâdy Dabr. At 'Ain many stone and sand partridges, wood pigeons, and several flocks of Tristram's Grakle.

Fish in Dead Sea.—At our observation rock I was very interested to notice for the first time several small fish actively swimming in the actual sea, *i.e.,* some yard or more from the shore. As I mentioned in my paper on 'Ain Feshkhah (*Quarterly Statement,* April, 1902, p. 165), a con-siderable quantity of fresh water finds its way out into the sea at this point, and this, of course, dilutes the Dead Sea sufficiently to enable the fish to live, but it is interesting to find fish living, not in a pool, to some

extent cut off from the sea (as at the 'Ain Feshkhah pool), but on the edge of the sea itself. Mr. Hornstein, who was with me, saw these fish independently. They are probably small cyprinodontidæ.

THE CONSTRUCTION OF THE GREAT PYRAMID OF GIZEH.

By Colonel C. M. WATSON, C.B., C.M.G., R.E.

IN an article which was published in the *Quarterly Statement* for July, 1899, entitled "The Ancient Standards of Measure," Sir Charles Warren discussed the knowledge possessed by the Egyptians of the properties of circles and squares with reference to the design of the Great Pyramid of Gizeh, but he does not appear to have noticed that the dimensions of the Pyramid, curious as they are, can be arrived at by a simple geometrical construction, and that if this construction had been laid out on the ground on a sufficiently large scale, no calculations were necessary to fix the various proportions.

The objects which appear to have been aimed at by the architect of the Pyramid are detailed in the ninth chapter of Professor Flinders Petrie's work, "The Pyramids and Temples of Gizeh." The principal of these were as follows :—

The base of the Pyramid was a square of 440 cubits side.

The height was equal to the radius of a circle, the circumference of which was equal to the perimeter of the base.

The floor of the great chamber, usually called the King's Chamber, was placed at a level above the base, where the area of a horizontal section was equal to half the area of the base of the Pyramid. The diagonal of the square at the level of the King's Chamber was equal to the side of the base, while the side of the square was equal to half the diagonal of the base.

The angle of descent of the entrance passage was at a slope of one over two, and the angle of the ascending passage and great gallery were nearly at the same angles.

I propose to show how these conditions can be met by a simple geometrical construction, and thus to point out how extremely near the results arrived at compare with the actual measurement as carefully made by Professor Petrie.

In the annexed diagram let the square ABCD represent the base of the Pyramid—AC is a diagonal and E the centre of the square.

Describe a circle around the square, and in this circle inscribe an equilateral quindecagon ("Euclid," Book IV, Prop. 16) having an angle at D.