(*Abstract of Paper No. 3837.*)

“The Water-Supply of Jeypore, Rajputana.” (No. II.)

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THE operations described in this Paper are supplementary to the works undertaken by Colonel (now) Sir Swinton Jacob,¹ and were necessitated by 12 years' almost continuous drought and deficient rainfall.

Difficulty in regard to supply began in 1896, when the rains partially failed. A supplementary dam was therefore constructed below the main dam to catch the leakage water which then percolated through it in considerable volume. The rainfall in succeeding years being still deficient, the supply was reduced from 1,312,839 gallons to 857,807 gallons daily. In 1899 the rains totally failed, and although the rainfall of 1900 was heavy, the floods brought down vast quantities of silt into the reservoir, which silted it up 15 feet.

In January, 1902, the reservoir dried up altogether, 20 feet of silt having accumulated over the original nullah bed, and 16½ feet over the original sluice-bed. From 1902 to 1905, a daily average supply of between 400,000 gallons and 500,000 gallons of water only was supplied to the city.

The difficulty has been overcome by sinking ten masonry wells, one 25 feet and the others 20 feet in internal diameter, joined by a circular masonry culvert passing through the silt which has accumulated in the reservoir into the sand below. These wells or shafts average 80 feet in depth, the two last constructed being 92 feet 7½ inches and 85 feet 6½ inches deep. The bottoms of the two latter were covered with 1 foot of ¾-inch ballast with 2 feet of coarser ballast above, and topped with 1 foot more of ¾-inch ballast to allow infiltration of water without admitting sand. The other remaining eight wells are bedded on a substratum of sandy clay mixed with kunkur about 3 feet to 7 feet thick, which keeps the silt out. The wells have wooden covers supported on rolled steel joists, to

¹ *Vide Minutes of Proceedings Inst. C.E., vol. cxv, p. 53.*

prevent pollution by pigeons and to keep the water free from vegetable growths.

The masonry culvert is 5 feet 9 inches in internal diameter, braced by a double line of steel rails tied with 1½-inch bolts. The suction main for the pumps runs along this culvert, being thus accessible for inspection, and is 18 inches in diameter reduced to 16 inches from the fourth well. It is fitted with a 6-inch branch suction pipe with foot valve and strainer down each well. The weight of the main where it crosses the wells is taken by tension bars suspended by pairs of rolled steel joists spanning each well.

The suction main has a continuous slope down from the pumps and is charged in 7 minutes by an ejector connected with an air-vessel and worked from the steam boilers. Air which leaks through the joints passes into the air-vessel and is readily ejected.

	Feet.
Length of main from new pumping-engine	1,680
" " " old " "	1,796

Difficulty has been experienced from time to time in preventing the silt rising in the last two cylinders, which are not bedded on any firm substratum, but this has been overcome by depositing a layer of about 1 foot of clean sharp quartz sand from the hillsides, which effectively stops the inflow of silt without appreciably diminishing the inflow of the water.

The supply from the wells in April, 1909, amounted to about 800,000 gallons per day. The work was carried out entirely by local native labour, and the cost was £7,214.

The original Paper, accompanied by 3 diagrams and 7 photographs, is filed in the library of The Institution.