

LONG EATON WATERWORKS

Mr. Francis Engineer and Surveyor, writes:

On April 1st, 1961, the water undertaking passed from control of the Urban District Council to the newly formed South Derbyshire Water Board, on which the Council have two representatives in a total membership of thirty one. While it was perhaps inevitable that the undertaking should now lose its identity by being merged into a larger unit, the Council over a period of some seventy years, successfully overcame many difficulties and provided an adequate water supply for the domestic and industrial requirements of the growing town of Long Eaton, as well as a substantial part of the water supply for Castle Donington.

The waterworks at Stanton by Bridge, near Melbourne were first brought into use in 1892, the Consulting Engineer being Mr. George Hodson of Loughborough. The works then comprised of a well 80ft. deep and 11ft. diameter in the millstone grit measures from which the water was pumped for 5 1/2 miles through a 12 in. diameter rising main to the Old Reservoir at Castle Donington. The original pumps by Tangyes of Birmingham are still in use— comprise 14 1/2 in. diameter pumps of the bucket and plunger type with gunmetal working barrels, delivering into covered tanks from which the water is drawn by 10 in. double acting ram pumps. The works include substantially built brick and stone pump and engine houses, and attendant's cottage.

When first installed, the pumps were steam driven but in 1926 the steam engines were replaced by Oil engines, each Of 102 h.p. by Crossley Bros. of Manchester, each with 3 1/2 h.p. engines for air compressor starters.

The original Well was augmented by the sinking of four 250ft. deep boreholes in 1894: by sinking a Shaft on the site of one borehole and driving headings 6ft. by 5ft. 6ins. from its base in 1925; and sinking three further shafts, with headings and an additional 295ft. deep borehole in 1935. The reliable yield is estimated at 250,000 gallons per day, though daily quantities of up to 400,000 gallons were pumped for long periods. The water is very hard having a total hardness of 370 parts per million, 150 being permanent hardness. This hardness was the source of continual complaints to the Council, but none of the numerous proposals for the installation of water softening plant was implemented. Until the nineteen thirties, the water was untreated, marginal chlorination was then commenced, superseded by break- chlorination by Wallace Tiernan in 1951, the dosage being 7.5 parts per million.

The Castle Donington Old Reservoir of brick and concrete construction with a vaulted brick roof, has a capacity of 428,000 gallons and a top water level of 312 O.D., i.e. 178 feet higher than ground level at Stanton by Bridge (134 O.D). and some 194 feet higher than average ground level at Long Eaton (approx. 118 O.D.). Additional covered service reservoir accommodation was provided in 1930 by the construction of Castle Donington New Reservoir, which has a capacity of 1,000,000 gallons and a top water level of 332 O.D. This reservoir is of mass concrete, brick lines, with steel and concrete columns supporting a concrete roof, arched between steel joists. The bulk supply to Castle Donington R.D.C, was taken from this reservoir until June, 1960, at that date the quantity being approximately 100,000 gallons per day.

From the Castle Donington Reservoirs, a 10 in. main delivers the water to the distributions mains system at Sawley, in the south west of the Urban District. The Stanton-by-Bridge source alone was soon found to be inadequate to supply all Long Eaton's water needs and by 1908 a second source of supply was being investigated, it being ultimately decided to purchase in bulk from the Derwent Valley Water Board. The proportion of the town's requirements taken from this second source steadily increased until, in 1961, 960,000 gallons came from the Derwent Valley Water Board compared with only 160,000 gallons per day from Stanton-by-Bridge.

Derwent Water is taken from the Board's trunk main at two points. 350,000 gallons per day are received direct from the trunk main by a 10in. connection at Wilne Road, Sawley. 610,000 gallons are taken at Risley, through a rising main to two covered service reservoirs. Risley Old Reservoir was constructed in 1936, is of similar construction to Castle Donington New Reservoir, and has a capacity of 500,000 gallons. Risley New Reservoir, a reinforced concrete structure built in 1956, holds 1,000,000 gallons. and like Risley Old Reservoir has a top water level of 350 O.D. Derwent water, from upland gathering grounds, is soft, having a total hardness of 40 parts per million (30 permanent). From the Risley Reservoirs, a 10 in. main delivers the water to the distribution mains in the north west of the Urban District. All sources of supply are connected by the 10 in. delivery mains to a common distribution system, the basis of which is a 10 in. diameter ring main round Tamworth Road, Wilsthorpe Road, Derby Road and Market Place. The 55 miles of distribution mains vary in size from 3 in. to 9 in. in diameter. In 1960, some 10,450 domestic premises were supplied, serving a population of 31,480, with 460 metered supplies to industrial and business establishments.

In concluding this brief review, it would be appropriate to record that Mr. E. A. M. Walker, Deputy Engineer, retired from the Council's in 1961 after having been associated with the Long Eaton Undertaking for half the period of its existence. Mr. F. A. Wall (Distribution Superintendent) and Mr. C. Hardy (Pumping Station Attendant), with service records of over 30 and 40 years, transferred to the South Derbyshire Water Board, who now inherit the responsibility of maintaining and extending this basically all important service of public supply.