REPORT OF THE DIRECTORS.

Gentlemen,

Your Directors in fulfilment of their promise at the last half-yearly Meeting, now present to you the Engineer's detailed and satisfactory Report on the condition of the Works of the Company.

Great George Street,

Westminster, S.W.

22nd August, 1863.

To the Chairman and Directors of the South Staffordshire Waterworks Company.

Gentlemen,

In compliance with the resolution of your Board, we beg to submit the following Report on the whole of the Works that have been executed under our direction since the Incorporation of the Company.

WATER SUPPLY. The water which is pumped into the South Staffordshire District is derived from Springs which flow into the Tunnel constructed by the Company, through the New Red Sandstone formation at Lichfield. This Tunnel is about one mile in length, and has a sectional area of about 18 feet.

Another source of supply is a Brook at Lemonsley, near Lichfield, which receives the springs that flow from the sandstone overlying the district, and the rainfall of an area of 2,600 acres extending towards Burntwood and Cannock Chase.

In addition to this supply the surplus flood-water of the brook, during storms, is impounded in Minster Pool and the Stowe Reservoir, near Lichfield, to the extent of fifty million gallons, and is also pumped into the other Reservoirs of the Company.

In order to prevent any contamination of the water, intercepting sewers upwards of two miles in length, having their outfalls below the Company's Reservoir at Stowe, have been

constructed, and every trace of sewage has thus been effectually excluded both from the Brook and the Reservoirs.

During the present season (one of the driest for many years past), these sources have supplied upwards of twenty million gallons of water weekly.

The Company also obtained power to construct another Tunnel about two miles in length between Stowe Reservoir and the Bourne Brook, which flows past Hanch Hall, near Lichfield. This supply of water was estimated at five million gallons daily, exclusive of the spring water intercepted in the course of the Tunnel through the Red Sandstone.

The principal feature of interest connected with the supply to be obtained from Bourne and Lemonsley Brooks is that the water is taken immediately from Cannock Chase, the highest land in Staffordshire, and at a point above any town, which will insure the water from ever being contaminated by sewage.

Although this work has not yet been executed, the Company have given the necessary notices to the Landowners for the construction of the Tunnel.

The analyses of the water from the Tunnel and Brook at Lemonsley and at Bourne Brook are as follows:-

	TUNNEL AND LEMONSLEY BROOK. Grains in Imperial Gallon.	BOURNE BROOK. Grains in Imperial. Gallon.
Lime.	4.01	3.94
Magnesia	0.31	1.21
Sodium	0.47	0.41
Iron, Alumina, and Phosphates.		Trace.
Sulphuric Acid.	1.39	2.76
Chlorine	0.73	0.64
Carbonic Acid	6.35	2.89
Silicic Acid	0.26	0.44
Organic Matter	0.83	0.82

which are combined in the water as chemical salts in the following proportions.

	TUNNEL AND LEMONSLEY BROOK. Grains in Imperial Gallon.	BOURNE BROOK. Grains in Imperial Gallon.
Carbonate of Lime.	5.41	3.58
Sulphate of Lime.	2.37	4.70
Chloride of Sodium	1.20	1.05
Chloride of Potassium	Trace	
Silica	0.26	0.46
Carbonate of Magnesia	0.63	2.53
Iron, Alumina & Phosphates ...		Trace.
Organic Matter	0.83	0.82
Total in Imperial Gallon ...	10.7	13.14

RESERVOIRS. The Company have constructed two Reservoirs at Lichfield, one at Walsall, one at Wednesbury, one at Coneygre, near Tipton, and one at Dudley. Of these reservoirs four are for storing about 90,000,000 gallons of water; the other two for local purposes, i.e. one for cleansing the sewers of Lichfield, the other for supplying the high district of Wednesbury with water.

PUMPING ENGINES. The Company have erected two Pumping Engines, of 100 horse power each, at Sandfield, near Lichfield; and two of 50 horse power each, at the Coneygre Reservoir, near Tipton.

The Engines at Lichfield are connected with the Lichfield Reservoir by means of the tunnel from which the spring water is derived, and an iron main and conduit of three feet diameter, extending under Minster Pool to The Stowe Reservoir. These Engines were made by Messrs. Watt & Co., and have worked most economically and without failure during three years. The foundations boilers, and other principal parts of a third Engine of the same size have been erected, and the cost of completing this will not

exceed £2,000.

The Pumping Engines are connected with the Reservoir at Walsall by a main, 24 inches in diameter for four miles, and 22 inches in diameter for the remainder, of a total distance of 10¾ miles. The height of this Reservoir is two hundred feet above the Lichfield Reservoirs, and 230 feet above the level of the pumping well of the Engines.

The main is continued from Walsall to the Wednesbury Reservoir for two miles by a pipe 22 inches in diameter, and for the remaining distance of three quarters of a mile by a pipe 18 inches in diameter.

The height of the Wednesbury Reservoir is 60 feet above the Walsall Reservoir. From Wednesbury to Coneygre the main is 12 inches in diameter, and the length about 4 miles. The Reservoir at Coneygre is about 40 feet below the Walsall Reservoir. That at Dudley is about 200 feet above the Coneygre Reservoir. There are two pumping mains between Coneygre and Dudley, and water is supplied to that Reservoir by the Engines at Coneygre, which were constructed by Messrs. J.&.G.Davis, and work very satisfactorily. The Reservoirs at Walsall, Wednesbury, and Coneygre, although constructed at different levels, are all supplied at the same time by the pumping engines at Lichfield; this is effected by an arrangement of the Valves, the mains being protected from fracture by the operation of an air pipe about 120 feet high, which has been constructed at the summit of the main at Brownhills; the air pipe being carried about 20 feet above the level of the highest Reservoir.

The main is laid along the South Staffordshire Railway for about 18 miles. The principal object in so laying the main was to obtain the support of the mines, purchased by that Company for the support of the Railway, and because it formed the shortest route between Lichfield and Dudley. The cost of maintenance was also considered, as in this mining district , inspection is always required, and the platelayers on the Railway see that none of the pipes are injured by mining operations.

By the Act of Incorporation of 1853, this Company was empowered to supply water to the City and County of the City of Lichfield, the Borough of Walsall, the parishes of Wednesbury, Darlaston, Tipton, West Bromwich, Rowley Regis, and Dudley, and the townships of Bilston and Willenhall, in the parish of Wolverhampton, and of Oldbury, in the parish of Halesowen, in the several Counties of Stafford and Worcester.

By the Amendment Act of 1857, the Hamlet of Smethwick, in the parish of Harborne, was added, and by the purchase of the undertaking of the Dudley Water Works Company, under this Company's Act of 1853, the Parliamentary powers of this Company were considerably increased. By our arrangement with the Wolverhampton Waterworks Company a boundary line was drawn through a part of the district in which that and this Company had conflicting powers, and the result is that this Company now possess Parliamentary powers to supply over a district, the area of which exceeds 50 square miles, with a population engaged chiefly in mining and manufacturing pursuits, of not less than 400,000 persons. Throughout this area, 20 miles of main pipes, varying from 3 feet to 1 foot in diameter, and 73 miles of service pipes, varying from 2 to 8 inches in diameter have been laid, and 9,600 connections made for the supply of consumers.

The following table gives the diameter and length of the Service Pipes.

8 INCH.	6 INCH.	5 INCH.	4 INCH.	3 INCH.	2 INCH.
1,087.	27,662.	6,615.	28,672.	41,108.	24,908.

TOTAL. 130,052 yards = 73 miles, 1,572 yards.

The supply of water hitherto has been sufficient for the requirements of the District, but when it is considered that upwards of 1,900 services were laid on during the last six months,

and some of them in connection with important works, such as Messrs Cochrane's, of Woodside, Mr.Muntz's, of Smethwick, and others of that class, we are of opinion that the whole of the supply authorised by your Acts of Parliament ought to be introduced into the District.

We remain, Gentlemen,

Your obedient Servants,

Mc. CLEAN & STILEMAN.