Special report by the medical officer of health on the pollution of the River Rother / Chesterfield District Council.

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Publication/Creation

Chesterfield: Hartley, 1901.

Persistent URL

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CHESTERFIELD P.76194 RURAL DISTRICT COUNCIL.

SPECIAL REPORT

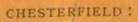
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SPECIAL REPORT

ON THE

Pollution of the River Rother.

To the Chairman and Members of the

CHESTERFIELD RURAL DISTRICT COUNCIL.

OCTOBER 4th, 1901.

GENTLEMEN,

In accordance with your instructions I traversed the course of the Rother between its source in Pilsley and the point in Beighton where it leaves the District, and also those of its principal tributaries. This took much longer than might have been expected by one who was familiar only with the course of the river as it appears on the map but not with its very sinuous course and the number of tributaries which it was also necessary to inspect.

The Rother takes its origin in Pilsley Fields at ordinary times, but this portion of its course is usually dry in summer, when the first contribution to the formation of the stream is the sewage of New and Queen Streets, Pilsley. It then passes in pipes under the main road between North Wingfield and Pilsley and flows southwards to Padley Wood. About quarter of a mile

below the village of Pilsley and before it enters the wood, it receives the overflow from the Pilsley No. 1 sewage tank, which as stated in the annual health report for 1898, consists of almost crude sewage. A short distance below this is a much-used footbridge, at which point the brook contains nothing but sewage, It then enters Padley Wood, where it receives good water from a land-drain, which constitutes the first clean water received by the stream during the greater part of the summer. After passing through the wood it reaches a refuse tip connected with the Midland Railway, at which point the brook has been temporarily dammed during its diversion in connection with the widening of the main line.

The stream has curved by this time and runs about due north, and keeps in this direction, with small divergences, during the remainder of its course in the District.

Below the dam the volume of water gradually increases and presents a clear and fairly pure appearance until Clay Cross is reached, where it is joined by the sewage of Danesmoor, when it at once assumes a foul aspect.

Lower down are the Clay Cross Coal, Lime and Iron Works, where, judging from the appearance of the outlet, coalwashings sometimes enter, though none were doing so at the time of my visit.

The brook flows down hence to Hagg Hill where the water has a very offensive smell from secondary decomposition, although it is fairly clear. A spring (land-drain?) overflows into the stream below the bridge and a stream of sewage from Clay Cross almost immediately after. The sewage about equals the stream in volume and degree of impurity.

Nothing of importance enters the stream until its junction with the Locko brook, which takes place between Hagg Hill and Clay Cross railway station, at a point about quarter-of-a-

mile south of North Wingfield Church, Here the Rother is very foul and only an open, unpaved sewer; the Locko is also impure but not nearly to the same extent.

The Locko.—The Locko receives the effluents, which are practically pure sewage, of the Hilly Fields tank, in the Parish of North Wingfield, and the Locko or Pilsley Lane Tank, Pilsley; and also the untreated sewage of Little Morton. in the Parish of North Wingfield. Notwithstanding this, it has a reasonably pure appearance where it crosses the main road between North Wingfield and Pilsley and until it reaches the new railway embankment, when it assumes a clayey colour from suspended mineral matter.

The appearance of the Rother is much improved by the absorption of the Locko, but much secondary decomposition takes place before it reaches Clay Cross railway station. Half-amile above the station, pumping water charged with iron-salts enters the stream, which has become fairly clear by this time. The volume is considerable and about equalled that of the united streams on July 30th. Nothing enters between here and Clay Cross but a steam exhaust-pipe, and the discharge from a small occasional urinal at the Clay Cross waggon-shop.

A small amount of water enters immediately south of the Clay Cross station bridge, and the effluent, which is practically pure sewage, from the North Wingfield tanks on the other side. The appearance of the stream is rendered much worse at once.

A stream containing sewage enters below the wasteheap of the New Foundation, or No. 4 Clay Cross Pit, and alongside the Clay Cross North Junction cabin, I am informed that this stream is vilely polluted about once in every three months with refuse from the gas works of the Clay Cross Company, and that

the lives of the people in the vicinity are then rendered a burden to them. The appearance of the stream at ordinary times is worse below than above the entrance of this small stream.

A six-inch pipe discharges discoloured water, apparently polluted with sewage, at the refuse tip at New Tupton, but from this point the stream gradually improves until New Tupton is reached, when a twelve-inch pipe discharges sewage from the so-called purification tank. Here it becomes worse and assumes the appearance of pure sewage.

After receiving this, the river gradually assumes a better appearance, and receives a brook of clear water from Wingerworth about half-a-mile below New Tupton. The stream has a fairly good appearance at Avenue Crossing, but is not very clear in places where its depth exceeds a foot or so.

At the Old Avenue Colliery, opposite Grasshill, belonging to the Clay Cross Colliery Co., it receives a large quantity of muddy water, probably several thousand gallons per hour, and at once takes on a bad appearance, and looks like ordinary slop-water sewage.

About 200 yards lower down it receives the sewage of Grassmoor, but this makes no perceptible addition to the badness of its appearance; further down, just before it goes under the Midland Railway, a culvert discharges impure water into it from the direction of the Midland Railway engine-sheds and cottages lying alongside the line.

The stream has rapidly improved and assumed by this time almost as good an appearance as it possessed before taking the muddy water from Old Avenue pit, but after passing under the railway it receives another similar dose from the New Avenue Works, the property of the Clay Cross Colliery Co., and becomes as foul looking as ever.

No addition to the impurity of the river occurs until just before it reaches the Derby Lane furnaces, Hasland, where it receives the sewage of the Midland Railway cottages previously mentioned.

Sewage from houses in Derby Lane enters at three points between the forge and the occupation bridge, but I found none between the latter and your Derby Lane sewage disposal works. The effluent from these works is only partly purified and is far from satisfactory.

About 30 yards below are the intake and outfall of the Weldless Tube Works; the water from the latter appeared to contain a large quantity of iron salts on Sept. 19th.

A cesspool for one or more of the Whitebanks Cottages has an overflow below the Whitebanks bridge, and the sewer from the remainder of the cottages leaks into the stream; one waste-pipe discharges directly into it.

Between the Great Central and the Lancashire, Derbyshire and East Coast Railways, the Calow brook comes in. This contains sewage matter from your Calow Lane tank, Hasland.

The Hipper joins the Rother near Messrs. Clayton's tannery.

The Hipper.—The Hipper rises among the hills above Holymoorside. I am told that waste dyes are sometimes discharged into it from the dye-works above the village of Holymoorside, but cannot personally vouch for it. It receives the effluent from the Holymoorside sewage disposal works, in the Brampton and Walton Urban District, which was not altogether satisfactory on the occasions I observed it. After entering the Borough of Chesterfield, it receives the sewage of a few houses and

some dirty water from Messrs. Robinson's works; and joins the Holm brook at Boythorpe Lane. Gritty water enters it at the stone sawmill of Mr. John Wright.

The Holm Brook.—The Holm brook comes down from Newbold, receiving the sewage of at least one house on the way. It has a good appearance until about 100 yards below Ashgate Road, when it receives "ochrey" water, apparently containing some sewage, from the direction of Newbold. I could find no sewage entering between this point and Baslow Road, but the appearance of the stream becomes bad, and tin cans and broken crockery are much in evidence. Water containing gastar sometimes enters at the gas-works; oil and gritty matter at Messrs. Turner Brothers' sawmill; and sewage by the surface drain at the bottom of Boythorpe Lane.

A combined storm-overflow and surface-water drain enters immediately above Hollis Lane Bridge and a storm-overflow and surface drain below.

An exhaust pipe discharges from the works of Messrs. Markham & Co.

Shortly below this point the sewage from 20 houses in Piccadilly, Tapton, discharges directly into the stream, and that of Tapton Terrace comes in soon after.

Sewage from Chesterfield enters the river just above the point at which it passes under the main road to Brimington. A storm-overflow exists at this point.

The main storm-overflow of Chesterfield joins the river near the footbridge at Wharf Lane and is used in rain-storms.

A dam placed on the Rother above the sewage farm diverts almost all (all in dry weather) the water into the Chester-field and Stockwith canal, so that the river bed would be almost dry but for sewage and sewage effluents. A culvert discharges immediately below bringing the overflow from the tank at Sunny Springs The river has the appearance of being about half sewage.

Another storm-overflow forms the boundary of the sewage farm, and a third occurs at the works.

Though nothing in the way of sewage can be seen at ordinary times to enter the river between the Brimington main road and the outfall of the sewage disposal works, the water has a very bad appearance in the deeper reaches.

The greater part of the sewage of Chesterfield is treated in bacterial tanks, and then passed on to land, but about one-sixth undergoes more satisfactory treatment. After passing through the tanks and a "roughing" filter, it is thrown into the air in the form of spray on to an aerating filter. The result is very satisfactory and the effluent is the best in the course of the Rother through the district. The works are being extended at the present time, as it is intended that all the sewage of the Borough of Chesterfield shall be treated in this manner.

Between the outfall from the filter-beds and the main outfalls are several deeply-laid land-drains which formerly conveyed the effluent from the land to the river.

(Addendum. While this report was in the hands of the printer and while alterations in progress in connection with the proposed extension of the sewage disposal works precluded the passing of sewage through the tanks and allowed of only land treatment, these were discharging a bad effluent, with the result that several persons mistook them for surreptitious outfalls for crude sewage.)

An outfall from the Chesterfield sewage farm enters above the Great Central Railway bridge, and the main outfall and another below.

The stream has the appearance and smell of pure sewage from this point until it reaches the Newbold sewage farm.

At the boundary of this farm is a storm-overflow, and above and below the Midland Railway bridge are the Newbold outfalls, which discharge almost crude sewage. The stream from this point up to the dam is practically a long pool of sewage, the rate of flow through which could be easily accelerated by the scooping out of a channel in the centre,

The only water of importance which enters the stream between the Newbold out-falls and Wheeldon Mill bridge is some containing iron salts which, combining with the sulphur compounds in the sewage, render it darker in colour and much worse in appearance than it really is.

The Drone arises in Coal Aston and takes a very circuitous course to the Rother, which it joins near the Sheepbridge and Brimington Station of the Great Central Railway Co. It receives some sewage in passing through Dronfield, and a very impure effluent from the Dronfield sewage disposal works in the neighbouring parish of Unstone. It then receives two "rusty" streams, the sewage of several houses, the effluents of the Apperknowle and Unstone sewage tanks, a small stream containing some sewage from the direction of Apperknowle, a large clean brook from Apperknowle, and the effluent from the Unstone Green sewage tank. The effluents from the tanks are almost crude sewage.

About 200 yards after leaving the Unstone boundary, it receives the sewage of several rows of houses on and near the Sheffield Road, Whittington. Several small streams of "rusty" water enter between this point and Sheepbridge, where a large one comes in. After passing to the east, under the main road and the Midland railway, it receives the sewage of Holland Road and a small quantity near the level crossing below Whittington Moor.

It has a vastly better appearance than the Rother at the point of junction.

The storm-overflow of the Whittington sewage disposal works comes in about half-a-mile below Wheeldon Mill through a culvert near Midland Railway bridge No 97. Another pipe discharges sewage from these works about 200 yards lower down. The main outfall discharges about 200 yards below this, close to a wooden occupation bridge. The sewage discharged by the last two is much darker in colour than the water of the river and apparently much worse.

The appearance of the river is now offensive in the extreme and the smell equally obnoxious,—both being much worse than at Wheeldon Mill. Its colour is usually dark slate-blue at this point.

A storm-overflow enters near the Midland bridge No. 98, near Whittington Midland station, and a discharge pipe (storm-overflow?) between it and the bridge.

No apparently impure water enters below this point until near Staveley works, where some water containing iron-salts enters near the occupation bridge. Below the Staveley works Midland Railway siding several exhaust pipes discharge on the right bank, and on the opposite side a small stream from the Campbell mine containing iron-salts and the overflow from the Barrow Hill sewage tank No. 1 comes in.

Almost below this, two 3 6"pipes discharge a large quantity of "ochrey" water, which I am told comes from the engine-sheds.

The river is almost stagnant at the Barrow Hill bridge, and consists of decomposing sewage which freely evolves foul-smelling gases. It then passes under another bridge where it picks up a small brook from the direction of Troughbrook and a land-drain. Less than half-a-mile below Barrow Hill a stream of hot water enters the stream but makes no perceptible difference in its appearance; this contains the sewage from the houses on the other side of the canal.

A short distance below this it receives the sewage of Canal Row, Staveley, which consists of about 30 houses; and at its entrance to Staveley Town a small stream on the left bank,

Below the Gas Works it receives a small stream of sewage from an 18 inch pipe coming from Staveley. The stream is dammed up at this point, where much gas is evolved by the almost stagnant sewage.

Another small stream of Staveley sewage enters a few yards below the weir; and Staveley mill contributes a small quantity. A farmer living at this point complained bitterly of the pollution of the river, which he held responsible for the loss of several beasts.

The river gradually improves in appearance from this point, for it receives no sewage worth mentioning until it is joined by the Doe Lea, when its appearance becomes worse.

The Doe Lea.—The Doe Lea, once a noted trout stream, rises in Palterton, and takes the sewage of some cottages on the Bolsover Road, Arkwright Town, Markham, Seymour, Poolsbrook, Netherthorpe, and Mastin Moor, and

coalwashings from the Ireland Colliery. The extensive works now being put in at Arkwright Town and Netherthorpe should do much to reduce the organic polluting materials, but the brook will never look well so long as it receives coalwashings.

Below the junction of the Rother and Doe Lea, the united stream receives coalwashings from Messrs. J. and G. Wells, Park Pits Nos. 1, 2 and 3, which enter through a ditch or watercourse at the beginning of Renishaw Hall wood and change its colour from chocolate brown to a deeper shade.

I found no sewage entering between this point and one about quarter-of-a-mile mile below the road between Eckington and Renishaw, where it receives a brook from the direction of Barlboro' which brings with it the effluents, practically pure sewage, of Barlboro' and Renishaw.

Soon after this it receives, on the opposite side or left bank, the sewage of Renishaw Hall, which is sometimes of large volume.

About half-a-mile below this is the Eckington main outfall, the sewage from which makes the appearance worse but not much worse. About quarter-of-a-mile further on, the stream is joined by the Ford Dyke which comes down from Ridgeway.

The Ford Dyke.—The Ford Dyke contains sewage, as shown by the secondary decomposition taking place at the junction of the streams, but the quantity is not sufficient to make any perceptible difference in the joint streams.

Yellow pond-lilies (Nuphar luteum) are plentiful in this part of the river, and many were in flower even when the water was at its worst. The river bank is very pretty but the walk is spoiled by the emanations from the stream.

From Ford Dyke to Killamarsh Forge, secondary decomposition may be seen taking place in all the many places where the rate of flow is small, but the river gradually recovers itself. It receives a small brook near the bridge which conveys the main road over the stream; this occasionally contains sewage but the amount is trifling.

Holbrook Dyke enters the stream below the bridges bringing with it a mixture of sewage and coal-washings which suffices to change its appearance much for the worse.

Nothing of importance enters between this point and the Killamarsh main outfall, which brings in the effluent from the tanks at Killamarsh, consisting of practically crude sewage. This makes the appearance of the stream much worse.

Half-a-mile below as the crow flies, or twice as far as the river winds, the Killamarsh brook enters. This appeared pure on the occasion of my one visit.

At Beighton, close to the railway station, an "ochrey" stream discharges practically all the sewage of Beighton to the river, but does not appreciably add to its impurity. The paper mill near the station, belonging to Messrs. J. H. Waddington & Co., Ltd., discharges a large volume of hot, dirty water which makes the appearance of the river very bad, and a few yards lower down another large quantity of dirty but cold water enters, apparently from the mill-lodge, and makes another change for the worse.

In conclusion, I may say that I spared neither time nor trouble over this Inquiry, and that I shall be very sorry if it is found to contain any errors of omission or commission. I was not asked to give my personal opinion on the various pollutions and have carefully refrained from doing so. I much regret the generally unsatisfactory nature which existing conditions give to my report.

Mr. Lines kindly accompanied me upon two of my excursions, and Mr. Hutchinson upon three.

I am, Gentlemen,
Your obedient servant,
HERBERT PECK, M.D., D.P.H.,
Medical Officer of Health.





