

**Letter to the Metropolitan Commission of Sewers on the drainage of the metropolis / By Mr. John Phillips, Chief Surveyor. Extracted from the orders of Court, 21st June, 1849.**

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# Metropolitan Sewers.

Letter to the Metropolitan Commissioners of Sewers on the Drainage of the Metropolis.

By MR. JOHN PHILLIPS, Chief Surveyor.

*Extracted from the Orders of Court, 21st June, 1849.*

1, Greek-street, Soho-square,  
21st June, 1849.

My Lords and Gentlemen,

The Survey Committee having, at their meeting on the 15th instant, passed resolutions in reference to the drainage of Westminster, approving in effect the suggestions of Mr. Austin's report of February, 1848, it becomes my duty, as your Chief Surveyor, to warn you against attempting to execute the works therein contemplated, as I have no hesitation in stating that they are wholly impracticable and are unworthy the objects which should be kept in view for the perfect drainage of this great metropolis.

Many large and populous metropolitan and suburban districts are now without any drainage, while the public are suffering greatly in consequence, and the drainage of many other districts is in so fearful a condition as to demand at the hands of the Commission immediate measures of relief, and the public are daily and justly expressing dissatisfaction at the want of energy exhibited by the Commission.

I should hesitate to address you if I were not satisfied that it is time for me to speak out both for the credit of the Court, and for the reputation of its officers, since at the last meeting of the Court it was publicly announced that a three feet pipe will carry off the drainage of the whole of the metropolis. This statement is repeated in the daily papers, and is passing through the provinces with more than usual rapidity. Such an announcement bearing the sanction of the Court, contrary as it is to fact and to all observation, is calculated to bring the Commission into ridicule, and to destroy public confidence both in the Court and its advisers.

The following passage is amongst the conclusions of the first report of the Sanitary Commission, 1847.

“The more the investigation advances, the more is it apparent that the progressive improvement and proper execution of this class of public works, together with the appliances of hydraulic engineering, cannot be reasonably expected to be dealt with incidentally, or collaterally to ordinary occupation, or even to connected professional pursuits, but require a degree of special study, which not only place them beyond the sphere of the discussion of popular administrative bodies, but beyond that of ordinary professional engineering and architectural practice.

“In justification of this conclusion, and to show the evil of the perverted application of names of high general professional authority, we might adduce examples of the most defective works which have received their sanction.



“All the improvements, which the public have yet obtained in this branch of public works, have been the result of the special and undivided practical attention of well qualified paid officers; and it appears to us that further improvement must be sought by the same means, and that one of the chief objects of future administrative arrangements must be to secure, protect, and encourage the zealous undivided attention and efficient labour of such officers.”

I had, therefore, good reason to hope that long 'ere this the great question of the drainage of the metropolis would have been referred to the Surveyors for their undivided attention and report; but the Survey Committee have ordered plans and estimates involving general principles, by which, without any reference to their Chief Surveyor, the Court may be committed to a course of action of an experimental and most costly nature, the results of which it is impossible to foresee.

For many weighty reasons, (one of which is, that the discharge of the sewage must, especially in rainy weather, be ultimately into the Thames far above the present point at which the waters are already polluted,) I feel called upon to represent to you that I entirely disapprove of the contemplated mode of operations. The “converging system” cannot prevent the pollution of the river which can only be completely protected from each day's accumulations by means of a Tunnel Sewer.

Instead of limiting the attention of the Court to minor matters and piece-meal work, such as the drainage of a detached and separate district: to the advantages of a 3-inch over a 4-inch pipe; or to the shape of a water-closet pan; the energy of the Commission and its officers surely should, in the first instance, have been concentrated on the selection of a sound and thoroughly practical and intelligible plan for providing an efficient outfall entirely independent of the Thames for the complete and permanent drainage of the whole of the districts within the jurisdiction of the Commission.

Having been thus compelled to thrust myself upon the notice of the Court and of the Public, and having intimated my objections to the proposed “converging system,” it will necessarily be expected that I should state my own views of what ought to be done to meet the urgent necessities of the case.

I propose that about twenty miles of tunnel-sewer should be constructed in a slightly and uniformly curved direction following the general course of, and in respect of sewage, as a substitute for, the river from Kingston on the western to the Kent or Essex marshes on the eastern extremity of the jurisdiction of the Court at such a depth in the blue clay formation, say 100 feet below the bed of the river, as would render it independent of all barriers, whether it be the River itself, the Rotherhithe Tunnel, the Docks, or any other difficulties hitherto suggested.

This work, the cost of which has been grossly exaggerated, may be extended up the river to intercept the sewage of the towns above, which at present pollute the stream; and down the river, as future occasion may require, possibly even to the sea coast.



Views less comprehensive than this should not, I submit, be entertained while considering the foundation of a plan for perfectly and permanently draining the metropolis, and the entire valley of the Thames upon the banks of which such a metropolis is situate. But, at present, the plan embraces only that part of the line before described, which lies between the river below Greenwich up to the King's Scholars' Pond main sewer at Pimlico, a distance of about six miles.

Such a work will be as constantly in action as the river itself, cannot get out of repair, and will endure for ages, is simple, economical, and efficient, and will be readily understood and appreciated by the public. It will afford relief at once and alike to all the districts lying below the level of the Thames, and which are now suffering from pent up filth and drainage in the sewers and open ditches which abound in these extensive districts.

This tunnel-sewer will manifestly afford a deep, permanent, and efficient outfall for the effectual drainage of the whole of the low, flat, and densely populated townships and parishes of Hampton, Teddington, Twickenham, Isleworth, Brentford, Acton, Ealing, Chiswick, Hammersmith, Kensington, Fulham, Chelsea, Brompton, Pimlico, and the City of Westminster to the westward, as well as of Wapping, Ratcliff, Shadwell, Limehouse, Poplar, Blackwall, and Bromley to the eastward, on the north side of the Thames.

On the south side of the river, the Tunnel would pass through Lambeth, Southwark, Bermondsey, the lower part of Rotherhithe and Greenwich, affording facilities for the complete drainage of Kingston, Ham, Petersham, Richmond, Kew, Mortlake, Barnes, Putney, Wandsworth, Battersea, Clapham, Camberwell, Newington, Walworth, Peckham, Hatcham, Deptford, Greenwich, Woolwich, and all the Hamlets and suburban villages contiguous to these places, on the south side of the river.

These works stand independently, as regards their immediate execution, of the Ordnance Survey (which is merely a superficial work) or any other preliminaries, and require but a few weeks of levelling and boring preparatory to the actual commencement of the work, and the six miles of Tunnel itself might be completed by the end of next year.

I propose that this Tunnel should carry off the whole of the house-drainage and other waters, which at present compose the ordinary flow of the London sewers in fine weather. As the separation of the house-drainage from the surface waters extends, this quantity would be diminished, and with a constant supply of water would become more regular—there would then be provision for the drainage of the towns above. The capacity of a Tunnel for such a purpose I estimate would be 8 feet in diameter at Greenwich, and 6 feet at Pimlico, instead of a 3 feet pipe as has been stated to be sufficient.

The sewage would be brought to suitable reservoirs or receptacles below Greenwich pumped up by steam power, and used either in a liquid or a solid state, or both as may be hereafter determined.

An important feature in this plan is, that the sewage may be raised and disposed of at any point or points of the line of Tunnel, where it could be profitably applied for agricultural purposes at any season of the year.

I do not hesitate to assert that the cost of the Tunnel, including pumps and machinery, will not be so great as that of the sumps or cesspools and discharging branches of the "converging system." And the annual expenditure of maintenance of machinery with the staff of engineers at each of the numerous stations required by that system will, with the one exception of the engine at the outlet, be entirely saved.

The six miles of Tunnel herein proposed, would cost under £200,000 ; and if the Court were to give £50,000 for the first mile of Tunnel, I would undertake to get the remainder executed by contract for £26,000 per mile.

A single rate of sevenpence in the pound would produce the amount required; and if this were spread over twenty-two years, an annual rate for that period of one farthing in the pound would suffice to pay the principal and interest.

I have, &c.

(Signed) JOHN PHILLIPS, Chief Surveyor.

To the Right Honorable and Honorable the Metropolitan Commissioners of Sewers.