

DOCUMENT 14-IV, b (Online Companion)

The “grand experiment”: Initial inquiries and strategy for completion (1854-09-02)¹

To the Editor of the *Medical Times and Gazette*.

Sir,—I have been engaged, during the last ten days, in an inquiry which promises to yield very conclusive evidence respecting the mode of propagation of cholera. You are, no doubt, aware, that there is an Act of Parliament requiring those Water Companies of the Metropolis which obtain their supply from the River Thames, to procure it at some point above the reach of the tide, and, consequently, free from the sewage of London. A certain time, which is not yet expired, was, however, allowed for the completion of the necessary works. The Lambeth Water Company, which formerly obtained their supply from a point near **Hungerford Suspension-bridge**, completed their works at Thames Ditton [near Hampton Court Palace] upwards of a year ago, and have ever since distributed water perfectly free from the sewage of London. The Southwark and Vauxhall Water Company, which, along with that just named, supplies the greater number of houses on the south side of the Thames, still obtain their supply from **Battersea-fields**, near Vauxhall. The mortality from cholera was much less during the epidemic of

Hungerford Suspension-bridge, Battersea Fields: See detail image from Snow, *MCC2*, map 2 in Document 14-III, Online Companion.

last autumn, in the districts to which the [Lambeth Company] water extended than in those districts which are exclusively supplied by the Southwark and Vauxhall Company. This will be seen on referring to a table in the return of deaths in London for the week ending the 26th of November, 1853. Soon after the commencement of the present epidemic, the difference in the mortality of the respective sets of districts was equally apparent—a difference which did not exist in 1849.

MORTALITY FROM CHOLERA IN DISTRICTS SUPPLIED BY WATER COMPANIES.						
Water Companies.	Sources of Supply.	Aggregate of Districts supplied chiefly by the respective Water Companies.			Deaths from Cholera in 13 Weeks ending Nov. 19.	Deaths to 100,000 Inhabitants
		Elevation in feet above Trinity High-water Mark.	Population.			
LONDON - -	- - - -	39	2362236	698	30	
* (1) Hampstead and (2) New River.	Springs at Hampstead and Kenwood, two artesian wells, and New River.	80	166956	8	5	
New River - -	At Chadwell Springs in Hertfordshire, from river Lee, and four wells in Middlesex and Herts.	76	634468	55	9	
Grand Junction -	The Thames, 360 yards above Kew Bridge.	38	109636	14	13	
Chelsea - -	The Thames, at Battersea -	7	122147	22	18	
Kent - -	The Ravensbourne in Kent	18	134200	30	22	
West Middlesex -	The Thames, at Barnes -	72	277700	84	30	
East London -	The river Lee, at Lee Bridge.	26	434694	144	33	
* (1) Lambeth and (2) Southwark.	The Thames, at Thames Ditton and at Battersea.	1	346363	211	61	
Southwark -	The Thames at Battersea -	8	118267	111	94	
* (1) Southwark and (2) Kent.*	The Thames, at Battersea, the Ravensbourne in Kent, and ditches and wells.	0	17805	19	107	

* In three cases (marked with an asterisk) the same districts are supplied by two companies.

¹ Snow, “Communication of cholera by Thames water,” *MTG* 9 (2 September 1854): 247-48, <http://johnsnow.matrix.msu.edu/work.php?id=15-78-51>.

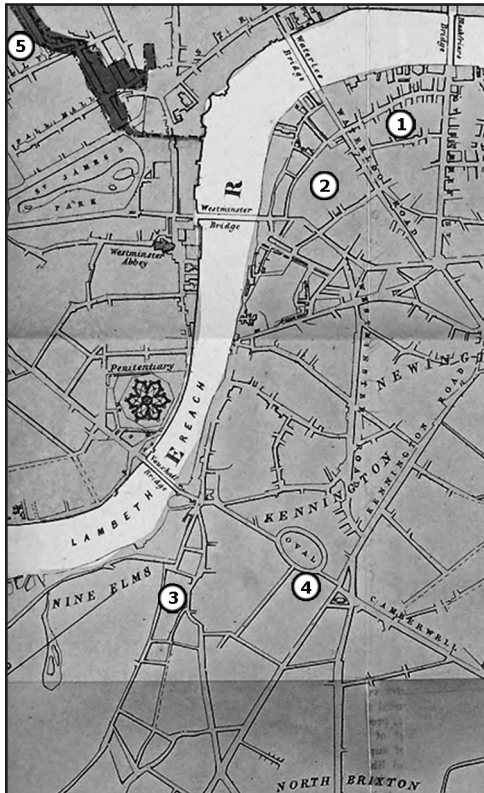
distant places: Locations depicted in pink near the bottom of 1855-01: Snow, map 2, Supplementary Images, Online Companion.

districts of: Among the intermixed districts depicted in orange/gray at the top of 1855-01: Snow, map 2, Supplementary Images, Online Companion.

Map Key

- 1: Waterloo, 1st part
- 2: Waterloo, 2nd part
- 3: Kennington, 1st part
- 4: Kennington, 2nd part
- 5: 18 Sackville Street

(Adaptation of Health of Towns Commission, *Water Districts*, in 1845 Report, facing 137.)



In order to ascertain clearly on what this difference in mortality depended, it was necessary to make an inquiry in detail. The only districts which are supplied exclusively with the water from Thames Ditton, are such **distant places** as Balham, Streatham, Dulwich, and Sydenham, whose freedom from the epidemic might be attributed to other causes than the mere absence of the polluted water. In the **districts of** Lambeth, Newington, and St. George, Southwark, the customers of the two companies are so intimately mixed with each other that two adjoining houses have very often a different supply of water; and it was, therefore, impossible to determine what kind of water was used in the houses in which the deaths from cholera occurred, except by an inquiry on the spot. I consequently resolved to call at each house where there had been a death from cholera; and Mr. Farr has been kind enough to allow me to take a copy of the addresses of those cases which have not been published in the weekly returns. I have gone over the sub-districts of Lambeth, called Kennington, first part, and Kennington, second part, as regards the deaths from cholera which occurred down to 12 August; and the sub-districts, Waterloo, first part, and Waterloo, second part, to 19 August. The following are the results I have obtained:—

<i>Kennington, First Part.</i>		
Supply.		No. of Houses.
Southwark and Vauxhall	...	27
Lambeth	...	2
Pump-wells on premises	...	2
Total	...	31
<i>Kennington, Second Part.</i>		
Southwark and Vauxhall	...	11
Lambeth	...	2
Total	...	13
<i>Waterloo, First Part.</i>		
Southwark and Vauxhall	...	7
Lambeth	...	1
Not yet ascertained	...	1
Total	...	9
In Waterloo, second part, 27 deaths have occurred in 24 houses, which are supplied as follow:—		
		No. of Houses.
Southwark and Vauxhall	...	17
Lambeth	...	3
Pump well close to the Thames; water dirty	...	1
Wells at the Lion brewery	...	1
Not yet ascertained	...	2
Total	...	24
If the cases are enumerated instead of the houses in this last sub-district, the return is as follows:—		
Supply.		Cases.
Southwark and Vauxhall	...	19
Lambeth	...	3
Pump wells	...	3
Not yet ascertained	...	2
Total	...	27

According to the returns made by the water companies to Parliament and to the Board of Health, there are quite as many houses supplied by the Lambeth as by the Southwark and Vauxhall Company in the above [intermixed] districts. Both companies supply alike all kinds of houses, those of the rich and the poor indiscriminately. It is evident, therefore, that in the sub-districts to which the inquiry has extended, the people having the improved water supply enjoy as much immunity from cholera as if they were living at a higher level on the north side of the Thames. I ascertained that in two of the instances where the water supply afterwards turned out to be of the improved kind, the cases could be traced to personal communication with previous ones.

I intend to continue the inquiry, extending it to the other sub-districts in which the two water companies are intermixed and to bring it down to 26 August [1854]. After this date, I am informed by Mr. Farr that the supply of water at the house in which every fatal attack of cholera may occur will be returned by the registrars in all the districts on the South of the Thames. An amount of information will thus be obtained that will be very conclusive. In the meantime, I have considered that the inquiry, even in its present stage, is too important to be withheld from the profession at a season when every week is adding so much to the mortality from cholera.

I must say a word on the nature of the water supplied by the Southwark and Vauxhall Company. It is not worse, either physically or chemically, than the water that has generally been supplied to town populations. It undergoes a coarse kind of filtration before it is distributed and it passes with careless observers for being quite clear, though it is not so in reality. It contains organic matter, both in solution and suspension, and deposits a small quantity of whitish flocculent matter on standing. It also contains a much larger quantity of chlorides than Thames water obtained above the reach of the London sewage. As the Chelsea Water Company obtain their supply from almost the same part of the Thames and have in every epidemic very much less cholera in their district, I may as well explain, that they filter their water much better than the Southwark and Vauxhall Company, and no doubt rid it to a much greater extent of the cholera evacuations which pass down the sewers into the Thames.

I am, etc.

18 Sackville Street, Aug., 1854

John Snow.